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ABSTRACT

Informal social networks are patterns of relationship and interaction among persons or collectives. This paper (1) outlines a typology of informal networks, conceived from the point of view of their importance to goals of social policy; (2) describes strategies of intervention which may be directed to the creation or enhancement of one or another of these networks; (3) examines the paradoxes and dilemmas associated with them; and (4) presents examples of three approaches to network-related intervention which appear to escape or mitigate the paradoxes and dilemmas. (Author)

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Network-Related Intervention

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Introduction

Informal social networks, as I use the term, are patterns of relationship and interaction among persons or collectivities. These patterns are regular and persistent and, in that sense, law-like, but they are not governed by formal rules. They lie outside the boundaries of formal contract, formal regulation, formal organization.

For example,

— The informal "coping networks" that surround certain elderly residents of Cambridge, Massachusetts, are based upon shared understandings, agreements, reciprocities and bargains. Mrs. Flint can depend upon her daughter calling at six every evening, and she can depend upon the visits of her young college friend (to whom she also gives English lessons), because these regularities are built into the meanings and the shared assumptions that have been created in their relationship. If the daughter failed to call or the young friend failed to visit, there would be no breach of formal contract. At the center for the elderly down the street, however, Mrs. Flint (who is a member) can count upon fifty-cent lunches and crocheting lessions, because these are built into the formal service offerings of the center. (She can also count upon conversations with her friends from Sommerville, but these again are part of her informal network.)

-- In the Seattle police force, according to John Van Maanen, patrol car policemen have certain formal relationships with central dispatchers which are specified in the task system of the police department. Patrolmen report their whereabouts to the dispatchers and respond to the dispatchers' calls; dispatchers monitor the patrolmen, receive

calls for help, and assign patrolmen to situations. But, "draped over" these formal relationships (in Kadushin's phrase) is a complex of informal understandings and agreements. Dispatchers understand that when cops go into Charlie's (an informal meeting place), they are likely to be there for two hours or more. Dispatchers will then protect those patrolmen by calling on others for assignments during that two-hour period (though they know where to reach them in case of real emergency). In return, patrolmen are continually taking cups of coffee and cigarettes to the dispatchers who are trapped for long periods of time in their little rooms and have no other access to these amenities. As a consequence of these informal relationships and understandings, the police chief's attempt to introduce a new cadre of female, civilian dispatchers produced a violent negative reaction among the patrolmen.

-- In the shore area North of Boston, there is a network of persons who own and build their own houses. Most of these people are blue-collar or lower-middle-income. The pattern is that of buying a lot of land, pouring the foundations or building a cellar, and then framing and finishing the house in small steps, as the requisite amounts of ready cash, materials and free time become available. Typically these houses cost their owners 30% to 50% less then comparable houses they might buy on the market. A man who sets about building his house for the first time usually knows other men who have done the same, and he goes to these others for advice, and sometimes for help with the physical labor. There is no formal group or association of owner-builders, and, characteristically, each member of the network (defined as a network by outside observers) will know only a few of the total

set identified by outsiders. One of the services provided by members is referral to certain specialists -- building suppliers, lenders, realtors, plumbers and electricians -- who specialize in service to owner-builders. Often, owner-built houses are in violation of building codes prevalent in the region, and they are either constructed in "code enclaves" (areas not covered by the code) or through informal bargains struck with building inspectors. In 1968 it was estimated (1) that in the United States as a whole some 158,000 housing units were built in this way.

Informal social networks such as these vary greatly from one to another (in the following section, we will discuss some of these differences), but they also share a set of features, in a family-resembling way. That is, not all networks share all of these features, but any two networks will be likely to share a number of them.

Some of the more important features are these:

. Boundaries are fuzzy and shifting. It is often hard to say who is in or out of the network. A person may be in, in some respects, and out in others. And the membership shifts over time.

. There is often no clear center or locus of leadership (though this is a matter of considerable variability among networks). Absence of center, multiple centers, shifting centers, are the norm.

. The networks are dynamic, in the sense that their properties, concerns, missions, configurations of members and boundaries, are subject to change, often in unpredictable ways.

. Networks are apt to have multiple functions. They may serve as vehicles for exchange, for mutual support, for status and evaluation, for the distribution of power, to name several functions. Often, they are able to serve

one function <u>because</u> they serve others.

. Informal networks may have multiple relations to formal institutions. They may be "draped over" formal structure (2) (as in the police example); they may substitute for formal arrangements (as in the housing example); they may supplement the services of formal agencies (as in the example of the elderly); they may subvert formal organizations (as in the case of pilferage networks, guerilla operations, and the like); they may be supplanted by formal organizations; and they may give birth to formal organizations. If we examine the pattern of relationships and arrangements in any domain of our society, we observe complexes of formal organizations and informal networks. If we trace the history of any formal organization, or informal network, we observe a complex pattern of interaction between formal and informal entities, and often we observe a kind of dialectic within which formal and informal entities generate, influence and give birth to one another.

. Networks depend upon persons who play "network roles". Among these roles are brokerage, referral, mediation, diffusion, facilitation, evaluation. In addition, some networks are built upon shared beliefs and values, and in these cases, a person may serve as carrier and promulgator of these. In this sense (as Sarason has observed)(3), the survival of vitality of a network may depend upon particular persons who play such roles, often in ways that come to seem irreplaceable.

. Networks depend upon slack. Without the free resources for exchange, the free time for involvement, the functioning of networks would become impossible. Often, in return, networks are creators of slack; they fill

functions for their members which would otherwise require greater output of time and resources, and they create "capital" which can be spent in a variety of ways.

. Networks have life-cycles, stages of development, growth and maturity. They are apt to have different functions and to serve different needs at various stages of their life-cycles. They have different degrees and kinds of vulnerability as they enter different stages.

. Some networks are central to the meanings persons find or create in their lives. For Mrs. Flint (as for some other elderly residents we have interviewed in Cambridge), her relationships with her daughter and her young friend are not merely sources of service and exchange; they are sources of meaning, self-definition and attachment. The energy invested in networks, as well as their effectiveness depends upon these created meanings.

Many of these features of informal networks -- all of them closely connected to the fact that informal networks escape formal contracts, organizations and rules -- have the effect of making them difficult or impossible, through formal institutional means, to control, create or support.

When informal networks are seen as objects of control, they present obstacles to control. Moonshiners, guerillas and "Mafias" are less visible than formal organizations, more powerful and more dangerous than individual violators of the law, less susceptible to attack at a single center, less amenable to regulation because they are unable to enter into formal agreements.

When informal networks are seen as objects of support, they raise analogous difficulties. It is hard to find them in order to help them. It is hard to locate their boundaries. It is hard to enter into transactions with them.

It is hard to get them to undertake programmatic activity because they tend not to have the means to adopt and pursue collective goals. It is impossible to enter into contracts with them because they have no means of undertaking contractual obligations. And a government, when it seeks to interact with an informal network, risks making that network into a formal organization.

Yet governments cannot, and ought not, to avoid encounter with informal networks. When the network is flagrantly unlawful, government ignores it at its peril. When the network has grown up in response to the needs and interests of its members, it may give more to its members than governmental intervention can. Indeed, there may be no governmental action that can achieve its announced objectives without the operation of informal networks.

Informal social networks would seem to be an indispensable component of any program through which government attempts to foster independence and self-reliance among those who are perceived to be in some way handicapped. Informal networks are central to the success of any intervention with the espoused objective of "catalyzing change", encouraging the diffusion of practices and techniques, or facilitating social learning. For how are the small, catalytic, pilot infusions of resources supposed to multiply their effects, if not through the mediation of informal social networks? Indeed, the rhetoric of governmental policy in fields such as education, corrections, human services, rehabilitation, health -- the field broadly known as social policy -- seems to point inexorably in the direction of interventions which take informal social networks into account.

These strong reasons for attention to what I will call "network-related intervention" combine with the difficulties inherent in such intervention to produce certain paradoxes and dilemmas.

In the following sections, I will outline a typology of informal networks, conceived from the point of view of their importance to goals of social policy. I will then describe strategies of intervention which may be directed to the creation or enhancement of one or another of these networks, the paradoxes and dilemmas associated with them, and finally, examples of three approaches to network-related intervention which seem to me to escape, or at any rate to mitigate, the paradoxes and dilemmas.

Section I: A typology of informal social networks.

What I intend in this section is not an exhaustive taxonomy of classes of social networks, but rather a list of certain selected types which appear to be relevant to the problem of the design of governmental interventions in the domain of social policy. These are types of networks which are either candidates for enhancement through intervention, or possible victims of the (inadvertant) consequences of intervention.

Figure 1 shows the category scheme I will be using. Helping networks are the informal networks through which individuals obtain for themselves (and give to others) the tangible and intangible services and goods they want or need. Organizational ecologies are the informal networks among formal and informal organizations which operate so as to carry out some larger function or to maintain some larger community. Secondary networks are informal networks of providers of service, practitioners, intervenors or reformers.

These types of networks differ from one another according to variables which include level of aggregation, persistence, kind of function provided, specificity of function, kind of boundary.

They are ideal types. Actual informal networks often cut across the typology, so that types I have distinguished become different ways of looking at the same network. Most real-world networks are hybrids. Nevertheless, the typology seems to me to be useful because these ideal types suggest important differences in theory and strategy of intervention.

FIGURE 1

A Typology of Informal Social Networks.

I. Helping networks.

A. Irregular economies.

B. Coping networks.

C. Support systems.

D. Practitioner/client networks.

E. Self-help networks.

II. Organizational ecologies.

A. Functional ecologies.

B. Community networks.

III. Secondary networks.

A. Movement networks.

B. Invisible colleges.

C. Practitioner networks.

D. Program networks.

I. Helping networks.

These are informal networks of persons, seen from the point of view of kinds of help people give to one another. I have differentiated them primarily in terms of the kinds of help provided. However, from these primary features other differences also flow -- differences, for example, with respect to the demographic or socioeconomic features of members of the network, the nature of the links between members, the sources of energy or attachment, and the nature of boundaries.

A. Irregular economies. This term, coined by Louis Ferman and his colleagues at the University of Michigan, refers to informal networks which serve as a nexus for the flow of goods, services and cash. They are economic exchange networks which lie outside the regular, or formal, economy. They are usually geographically bounded. Their functions for low-income people are particularly noteworthy, for the extent to which irregular economies enable the poor to make do with less, or to survive in times of scarcity or economic crisis.

Beverly Murphy (4) offers a case study of an elderly lady, Bonnie Brandt, whose irregular economy supplements her social security income.

> As income from any government source is too small to allow for reliance on regularized service industries, elderly persons tend to utilize whatever kin, neighborhood and associational ties available to them to maintain their independence of institutional facilities as well as to manage financially on a limited amount of money.
>
> ...Bonnie Brandt, a 77-year old widow, living alone in her own home, a resident of the neighborhood for thirty years, supplements her social security check by renting her garage for boat storage to a man down the street and by renting the extra bedroom in her home. Although the pace of her life becomes slower with increasing age and infirmities, the responsibilities for keeping her property up to neighborhood standards of the

> well-groomed lawn, the decent paint job, the unleaky roof, the smooth cement walk, steps and porch, etc., do not diminish....While Mrs. Brandt may be thought of as an actor in the irregular economy in that she supplements her fixed income with off-the-book cash she collects from renters, she is primarily a user, relying on kin, neighbors, friends and contacts she makes through them to remain viable, functioning and, to her mind, self-sufficient.
>
> ...Of the four neighbors with whom Mrs. Brandt has continuing contact, two have more than five children. The children tend to run the little errands for her and do the small tasks around the house, while the mothers will do the laundry and send over food. One father is her "plumber" and Mr. Fix-it man. The young woman next door has known Mrs. Brandt all her life and calls her "Aunt Bonnie". Mrs. Brandt used to babysit for her and she now does her "aunt's" hair regularly...and will give her rides to Sears on occasion. Mrs. Brandt reciprocates all these little tasks in small amounts of cash...Payment in cash is made simply because there is no other way for her to reciprocate.
>
> ...The choice not to live in an institutional facility is directly related to (her) ability to utilize whatever social ties and connections available to keep home and body functioning.

In a more general sense, the irregular economy is a residual category. At least in the United States, the irregular economy has no existence independent of the formal economy. It depends upon, supplements, and exists within the interstices of the regular economy. It fills a variety of functions. It is a kind of slack in the system which many different elements in the society can feel and respond to. It is a buffer zone for transitions of several kinds; it is a zone of activity within which new ways of behaving can emerge -- for example, within which individuals may survive periods of unemployment, or move from wage-labor to self-employment, or from economically self-sufficient middle-age to potentially dependent old age. It is a repertoire (or part of a repertoire) that allows an individual to exercise choices which would not other wise be available to him.

Emmanual Piore, of M.I.T.'s Department of Economics, has used the term "economic dualism" to distinguish between regular and irregular economies, pointing out that whole segments of the population of a society (particularly in developing countries) may spend their lives within the framework of an irregular economy, surviving by means of informal economic relationships, cut off from (or never choosing to enter) the formal economy. In this context, the irregular economy plays a central role with respect to prevailing theories of economic development, for it is often claimed that "development" entails the movement of the poor up through channels of the formal economy. What may well be true, on the contrary, in developing countries and in certain low-income segments of our own, is that poor people may remain for their whole lives, indeed for generations, within the framework of an irregular economy. For them, the concept of formal economic mobility is a myth.

B. Coping networks. These are the informal networks through which individuals get what they want or need in order to cope with the problematic situations in which they find themselves. Coping networks differ from irregular economies in that they are conceived as broader in function. A coping network, for example, provides relief from loneliness, advice, emotional support, a sense of belonging, a sense of self-worth, as well as the informal equivalents of economic goods and services which might also be purchased in the market economy. I intend the irregular economy to be understood as a special case of coping networks.

While it is true that all persons in our society have coping networks of greater or lesser richness and diversity, and depend upon them, there is a special importance to consideration of coping networks available to the disabled. Here I include the physically disabled, the mentally ill, the elderly, those who have been labelled as criminals or delinquents or "deviant" members of society (homosexuals, for example). All of these groups experience particular difficulties in coping with situations which, for others in the society, would be normal hurdles to be jumped -- or, in some cases, would not be problematic at all. It is particularly significant for the disabled that their coping networks may substitute for or supplement the formal services (public and private) which are for them difficult of access or repugnant.

There is no implication here that the coping network is the same for all members of a particular group of disabled persons, even within a narrowly bounded geographic area. Each person has his own coping network -- more or less rich, differentiated, interconnected and effective. Sometimes, but not always, individuals are members of the same network and play reciprocal roles. Sometimes, but not always, membership in such a network is explicit and self-conscious.

Two examples, drawn from an M.I.T. study of a group of elderly residents of Cambridge (5), will help to illustrate the concept.

Veronica is 69, ill with phlebitis and back-ache, and lives in a public housing project. She describes herself as "alone a great deal" because she had a husband (now dead) who "didn't care for company". But she has a

daughter, living in Belmont, who calls her every evening at 7:00 and comes to see her on Sundays. This daughter is the very center of her life, available to her in times of crisis, ever-present in her thoughts. In the senior citizen's center, Veronica has learned to crochet and spends her time crocheting shawls for this daughter. Veronica accepts her daughter's attentions with absolute and unquestioning confidence; of course her daughter looks after her, just as she, Veronica, looked after her own mother. (When Veronica's mother was dying of cancer, Veronica "ran from work every evening to feed her".) But Veronica's network is not limited to her daughter. There are her "girl friends from Somerville" with whom she has regular phone conversations, a man friend who "comes over once in a while to check on me", a young fellow on the third floor who does the heavy cleaning, children from the family downstairs who use Veronica's dining room as a place to study.

Dorothy is 83, owns her own home, was formerly a housemother at Radcliffe. She has a son, in his early 50's, who "hates Cambridge and is seldom here". But she is very active in the Christ Church, chiefly because "it brings me a lot of very fine friends". And during the last 12 years Dorothy has created a small career, giving English lessons to foreign students. "They come to me for a year or two and some of them I have kept for friends for years and years. I have friends in Italy and Switzerland and South America -- all who were my students. And that has been more fun than anything I have ever done". These young friends come often to visit -- to the point that Dorothy wishes "she were a little more isolated" -- and provide services, such as driving her to the doctor's in a car. One of these friends, a young woman of 34, calls every day.

Coping networks are highly varied, very nearly as varied as the number of persons who have them. There is evidence from our sample that they play a variety of roles in relation to the system of formal service agencies, sometimes facilitating access to those agencies, sometimes supplementing the services formally offered, sometimes substituting for what those agencies might otherwise provide.

There is evidence, as well, that the disruption or loss of coping networks may precipitate a break-down in the lives of the disabled.

C. Support systems. This is a term drawn from the literature of the mental health professions. It refers to the informal networks which are mobilized in times of crisis -- financial disaster, illness, depression, loss of a mate or dear one. In a more general sense, "support system" is the name given to that part of one's coping network which enables one to live through loss and crisis without falling into mental illness. Gerald Caplan, among others, has been associated with a theory of community psychiatry which interprets kinds of mental illness as responses to severe loss in the absence of support systems that enable the person suffering to bear that loss, to live out the period of grieving, and to recover.

Robert Weiss (6) has proposed a view of support systems which focusses on the functions of nurturance and attachment:

> "I propose that people engage in help-seeking when their lives are in turmoil, or maybe overburdened, and they've had more trouble than they can deal with themselves. So the need for attachment is fairly steady, the commitment to children, the commitments associated with nurturance are steady; that means the community is more or less steady. Though not as pressing as the need for attachment, the need for nurturance shows up only under certain circumstances. It shows up in crisis, in transition, when people's lives are moving from one point in the nation to another,

> or in death, when there is something that's missing in one's life. It shows up under conditions when people can't cope given their own resources, and then they turn, and who do they turn to?...A woman I know had a severe problem, and she wasn't sure whether it was a medical problem or a legal problem or a moral problem. She started out by defining it as a moral problem and saw a priest who interacted with her to deal with it in moral terms... She had trouble. She didn't know how to deal with it, except that somehow it seemed this was a man she could talk to...The problem with this was it left her with all the problems she couldn't act on on this basis...So she moved from the priest to a lawyer...But she was really seeking, all through this, someone who would offer her support and say, 'I can see that you can't cope with this yourself but the two of us together can cope with it'...What do people look for in these relationships? The answer seems to be they look for people who are different from the, different from their friends, and their kin and are of a special kind...people who wear robes, either figuratively or literally. They are people who present themselves as different, as knowledgeable, as strong, and who ask that they be accepted this way. Then all these things together make a life.

Weiss is careful to point out that "people who wear robes" may or may not be those formally empowered to do so. And he is equally careful to note that not all situations of crisis and loss require support from the robed.

Benson Snyder has paid attention to the roles of support systems, formal and informal, within the context of particular institutions. He has noted, in The Hidden Curriculum how informal support systems function within an institution of higher education such as M.I.T., how individuals seek to find and build support systems, and how their absence can precipitate various kinds of break-down.

> We came to the conclusion that most of the students using the Psychiatric Service were reasonably healthy individuals responding to dissonance in their immediate surroundings which threatened in some way their sense of worth and self-esteem. They came into what they perceived to be a relatively neutral arena...in order to sort out the mixed and contradictory signals that beset them...Thus the Psychiatric Service and to a considerable extent, all of those involved in helping individuals, became, for the institution as a whole, a source of insight into some of the unexpected and unintended consequences of the immediate efforts of students to 'fit in" with its overt and latent demands.

> ...The student who has begun to feel helpless, unable to decipher successfully the messages confronting him, has the most serious and dangerous response. His self-esteem will drop and he will have less energy available to think through his dilemma and alter his circumstances...one or more of this group will turn in despair to one or more of the helping resources. (7)

Snyder is careful to note that the "helping resources" to which students turn in such times of crisis are often not the Psychiatric Service but faculty members, friends, and even janitors in the dormitories.

D. Practitioner/client networks. Within the broad category of "helping services" I include those whose functioning is not limited to crisis-response, although it may include such response. Examples are day-care services, medical care, job-finding, information and referral, rehabilitation, and the giving of advice concerning problems experienced in various life-situations -- for example, adolescence, unemployment, widowhood, marital separation, or recovery from a recent disability.

Informal helping networks function in relation to formal helping services in several important ways. First, informal helping networks may substitute for formal advice-giving. David Clifford and Donald Warren, of the University of Michigan, have studied this phenomenon. Clifford describes some of their findings as follows:

> ...we were struck with the studies (by Strom, and Gern) which showed that 50% of the care of the people who were impaired or sick or had other problems, never got into the professional system. So the whole issue became what was happening to those people, how were they coping and surviving?...We defined as help whatever happened when they had a problem and talked to someone about it.

Clifford and Warren took communities as their units of analysis, and found that,

> Community patterns seem to cluster around four types....You can ask, when you have high problems, are those matched by high resources; or if you have high incidence of problems, are they matched by a low incidence of resources available to cope with those problems... A community in the "high, high" category, we called a helping community; they had high incidence of problems but it was matched by high resources. Another type of community had high resources but low problem incidence, ...a supportive community. The setting that had high problems and low resources we called a deficit setting. And then the last kind, which was "low, low" we called at risk.
>
> ...We found a number of model patterns...If a person had a problem and talked to a professional about it, he tended to talk only to a professional about it...In the supportive communities, we see a little more differentiated pattern...where people were talking to a variety of helpers: primary helpers such as a relative or spouse, as well as proximal type helpers, people who were related by proximity whether it be co-worker or neighbor, and to professionals as a group. (8)

Informal social networks may also mediate a person's relationship to a formal service system. Kadushin (9) has described, in his "association for the advancement of psychotherapy", the ways in which informal networks can provide both incentive, guidance and access to the use of formal psychotherapy.

Mark Fried, in his studies of the West End of Boston, describes a kind of practitioner/client network that defies easy classification in formal/informal terms. This is the instance of "displaced services", where a practitioner of one sort of helping service will provide services which lie outside the formal bounds of his specialty. Thus a medical doctor may provide psychotherapy of a sort (some researchers have claimed that most patient-doctor contact is of this kind). A pharmacist may provide medical advice. A realtor may provide advice about home-care and maintenance. Here, it is as though the matter of accessibility were primary; a person who has ready access to a particular kind of practitioner, and lacks access to others,

may use his relationship to that practitioner to seek kinds of help which lie outside the formal boundaries of the practitioner's specialty.

Finally, in certain categories of helping service and for certain kinds of clientele, a large proportion of the service may be offered and secured through an informal network of providers who fall outside the formal service sector. Thus, in a study of day-care in the city of Boston (10), it was estimated that well over 90% of the day-care was secured through "neighborhood nannies". There were formal day-care centers, offered under various auspices. But because these were too small in number, too expensive, too inaccessible, or for other reasons were perceived as undesirable, the great majority of day-care users had recourse to an informal service network. It was a matter of no small consequence that the institution of formal regulations, calling for the licensing of day-care practitioners and the inspection of day-care facilities, had the effect of making the informal day-care network into an illegal enterprise.

E. Self-help networks. In the introduction to this paper, I have briefly described a network of owner-builders who operate on the North Shore of Massachusetts. This network -- consisting of owner-builders themselves and of the specialized suppliers and experts to whom they turn -- has been the subject of studies by Robert Ledogar and William Crindley, of M.I.T.'s Department of Urban Studies and Planning. In a study of self-help in housing, undertaken by OSTI in 1970, it was found that similar networks, variations on the theme, exist in other regions of the nation and account in any given year for a not inconsiderable number of housing starts.

John Turner has made a career of the study of such networks, particularly in the context of developing countries, where owner-builder networks tend to take the form of "squatter settlements". Here, self-help is not limited to the building of houses. Such settlements, to be found on the fringes of virtually every sizeable city in every developing country, are sites for the networks of irregular economy, coping and support through which rural migrants make the transition to urban life and survive in the midst of a society and an economy which often appears to have no place for them. Squatter settlements provide contexts for self-help in many domains other than housing -- for example, in healing, job-finding, cooking, shopping, clothing, and schooling.

In a squatter settlement of the South American variety, it is not uncommon to discover that older residents have succeeded in constructing dwellings of considerable complexity and elegance. Their houses may be made of brick (filtched one at a time), with poured concrete floors, plumbing and water and electricity (often secured by an illegal tap into city utilities). More recent arrivals live on the far edge of the settlement. Their houses have bamboo walls, dirt floors, and clay tile roofs. Little by little, the recent arrivals upgrade their houses until they begin to resemble those of the older residents. There are established building techniques, established sources of materials to be stolen or bought, established patterns of expansion and improvement of houses, which new arrivals learn by observing the work of their predecessors. The squatter settlement is thus a kind of community learning system, and its physical structure is a map of the stages of community progress.

Self-help networks are usually less obtrusive than this. Their distinction from the other networks we have so far discussed lies in their focus on particular functions -- housing, farming, schooling -- rather than on crises to be overcome, on economic exchange per se, or on advice-giving or service-provision.

Through a self-help network, for example, individual workers may succeed in becoming entrepreneurs, establishing a small business concern -- a garage, a hardware business, a home-maintenance service. The informal network plays roles of expertise, referral and technical assistance, as well as brokerage and access to customers. In addition, as Petter Marris has pointed out in his study of African entrepreneurs (11), the network can provide the relationships of trust which are essential to the functioning of any business.

II. Organizational ecologies.

The term is taken from Eric Trist. (12)

> "By the term organizational ecology, however, I wish to refer not to a focal organization and its organization-set but to the organizational field created by a number of organizations whose interrelations compose a system at the level of the field as a whole".

Trist's usage is close to Roland Warren's "inter-organizational field".

From the point of view of some description of a concern -- labor conditions, unemployment, the vitality of communities in upstate New York; the well-being of the blind in the greater Boston area; the adequacy of infant nutrition on Columbia Point -- there is a cluster of individuals and organizations (formal and informal) whose interaction is perceived as crucial for that concern -- for example, the interaction of certain towns, labor unions, and business associations in upper New York State. But there is no formal organization or institution which encompasses these different participants.

They may interact to affect the condition of concern, but without awareness that they do so. The condition is then the unintended outcome of their unplanned interactions. The resultant of these interactions is what Russell Ackoff calls a "mess" and I call "ecological adaptation".

When the environment relating to the concern in question is turbulent and uncertain, when the situation shifts out from under the "map of problems and functions" represented by the formal organizations involved --then such "messes" are more likely to be perceived as problematic. One may then recommend that members of the network increase their self-consciousness

and raise their level of informal organization. Once a network of organizations and individuals has been identified as operating informally in relation to a particular function or condition, and it is seen as a defective network, then intervention may take the form of attempting to make that network more self-consciously attentive to improvement of the condition.

Organizational ecologies are networks whose members include organizations (rather than persons alone). The focus of their interaction is some communal, or collective issue, rather than one person's "coping" (or the sum of a number of persons' copings). These networks are channels for "flows" (in Kadushin's sense) but they are also patterns of collective action in relation to some condition or function conceived as an end-state.

It is important to distinguish two kinds of organizational ecologies.

A. Functional ecologies.

In Beyond the Stable State, I defined "functional systems" in the following way:

> At any given time, the institutional cross-section of a society reveals a design for addressing the functions which have been thought worth carrying out and for solving the problems thought to be worth solving...The institutional map of a society, like the physical map, reflects a process of social design...In our society, the institutional map displays, in the foreground, organizations defined at high levels of specificity. More general functional systems exist, as it were, only in the background; no individual existing organizations correspond to them. In the foreground is the textile company, the lumber firm, or the hospital; in the background is the system for keeping clothes clean, the building industry, or the health care system.
>
> Over time, we shift our perspectives on the problems that need solving. But institutions have an inertial life of their own; consequently there are always mismatches between the institutional map and the problems

> thought worth solving... With the loss of the stable state, this condition of mismatch becomes endemic and universal. There is always a state of mismatch between the institutional map and the array of problems taken to be important.
>
> The creation of a new, functional system combining many previously separate components leads chiefly to two fundamentally different strategies:
>
> .Gain control of all elements of the functional system in order to subject them to central management.
>
> .Knit together the still autonomous elements of the functional system in networks which permit concerted action.
>
> The first is the strategy of the business system firm. It is also the strategy of centralist approaches to the provision of services...The second strategy recommends itself when political, economic or managerial considerations make it impossible to internalize all the elements of a functional system...
>
> Both strategies bring new networks into being -- in the first case, networks internal to the framework of single organization; in the second, networks of semi-autonomous elements. (pp.180-184)
>
> In a variety of ways, (such) informal networks substitute for institutionalized functional systems...No one controls all of the elements relevant to the nutritional care of infants. No one agency has both responsibility and authority to carry out that function. Anyone seeking to carry it out, therefore, must find ways of linking together or negotiating the separate agencies and organizations...he will have knitted these separate elements together and will have produced a 'nutritional care network'. (13)

In the passages quoted above, I have lumped together the <u>discovered</u> networks of agencies and persons which are found to interact regularly and informally so as to have the effect of responding to the conditions named by some functional system ("keeping people in clean clothes", "keeping people fed", "responding to childhood disabilities"), with the <u>created</u> networks designed to meet such functional requirements.

I would now give the term "functional ecology" to the first variety of network and "functional system" to the second. For example, regular patterns of informal and formal interaction have grown up among textile companies, appliance manufacturers, chemical companies, cleaning services, retailers and consumers (among others) so as to keep some people some of the time in clean clothes. There is no formal organization corresponding to this informal network. Neither is there a total absence of awareness, on the part of the organizational members, that their actions and interactions do have the resultant effect of carrying out a societal function that most of us deem important.

For most of the societal functions commonly recognized by members of our society, such functional ecologies can be identified. They are characteristically mixtures of formal and informal relationships. Their nature and their boundaries will be seen as different, depending on the particular description of the societal function with which one begins.

B. Community networks.

Here, the network domain is not a societal function as such, but is a geographical region which is also conceived as the site of a more or less coherent community. The North End of Boston, Middletown (Connecticut), and the region surrounding Jamestown, New York, would all be examples of communities, in this sense.

The focus of the network's interactions, as perceived and described by some observer, is something like "the well-being of the community", or is more specifically, "the community's manpower system", "the community's land-use and development system", and the like. In each case, "community

network" is a construct of the observer, a way of grouping together and bounding the interactions of persons and organizations in the community which appear (to the observer) to have to do with some broad condition or function of interest.

It is such a network which Herbert Gans described as operating in the West End of Boston, in his Urban Villagers. (14) It is also such a network which Jane Jacobs found in Greenwich Village and in Boston's North End (as described in her Death and Life of Great American Cities). (15) For both Gans and Jacob, the informal community networks were conceived in a number of ways. They were coping networks and support systems for community members; they were systems through which particular sorts of community functions could be identified (the provision of safety from vandals, thieves and subversives, for example); and they were also vehicles for Gemeinshaft or community feeling, the objective correlatives of the very meaning of the community. In this sense, community networks are analogous to the coping networks of our sample of elderly residents of Cambridge; they are at once functional exchange systems and vehicles which carry the meaning of lives.

If Gans and Jacobs described community networks, they did so in order to call attention to their value and to protest against their destruction through urban renewal and urban redevelopment. Gans and Jacobs are leading members of a class of community planners and social critics who have identified themselves as critics of those governmental and private interventions which have had the planned or inadvertant effect of destroying community.

With the introduction of the concept of community network, the consideration of network-related intervention moves into the broad field of city and regional planning and community policy.

III. Secondary Networks.

Secondary networks are the informal networks of providers, practitioners, intervenors and researchers who carry out their activities in relation to some societal condition of concern to social policy. These informal networks fulfill for their members functions that are analogous to those of helping networks. But the members of these networks are themselves at work on issues of social policy. They are themselves providers of services to people, or they are intervenors who seek to influence the ways in which such services are provided, or they are reformers who give their allegiance to an image of service system reform, or they are researchers who study the phenomena of social policy.

I single out these informal networks because of their central importance to the problem of network-related intervention. Those who concern themselves with intervention related to social policy are in various ways themselves members of informal networks. The nature and potential of their networks has much to do with the possible forms of network-related intervention.

It is useful, I think, to distinguish four types of secondary networks.

A. Movement Networks.

These are the informal networks of persons who share a particular ideology, a sense of an injustice to be remedied or of a societal problem to be solved. Central to these networks is a particular concept of social reform.

In Beyond the Stable State, I described some of the movements of social reform powerful in the United States in the 1960's:

...This evolution has followed the pressures for social revolution stemming from a cluster of interrelated movements for civil rights, black power, peace, disarmament and student revolt. These are all national or international causes, but at regional and local levels they have been allied with movements against urban renewal dislocation of neighborhoods by superhighways, and abuses of community interests and rights too numerous to mention. The organizations involved range from SNCC...CORE, the Black Panthers, the SCIC, the Urban League, the NAACP, to the SDS... PAX...and include portations (or at times all) of organizations like ADA...UAW...and the Welfare Rights movement.

Typically, we cannot say precisely whether this is a movement or a set of interrelated movements. It is the interstices of established organizations; or rather, the instruments through which the movement works itself out...

Seen as a system for diffusing innovations, the Movement has had a number of remarkable features:

- It has no clearly established center. Centers rise and fall on a shifting ad hoc basis, around new issues and leaders...

- Neither is there a stable, centrally established message...

- The system of the movement cannot be described as the diffusion of an established message from a center to a periphery...

- Its remarkable behavior and its international scope depend upon the infrastructure technology on the basis of which it operates...The connectedness permitted by highly developed infrastructure technology allows the movement to retain cohesiveness in the fact of shifts in the centers of leadership and the central doctrine. Because of the ease with which innovation can diffuse itself throughout the system as a whole, the movement can adopt an ethos in which transformation around the new new is a value in itself.

The learning system of the movement is survival-prone because of its fluidity and its apparent lack of structure. Its ability to transform itself allows it to continue to function with vitality as issues and situations change around it. Its lack of a single fixed center makes it difficult to attack. Its scope is no longer limited by the energy or the resources at the fixed center, nor by the capacity of the "spokes" connecting the primary center to secondary ones. (16)

In the years since these paragraphs were written (1970-1977) it has become apparent both how transient was the movement I sought to describe and how powerful it has been as a source of learning and influence for other movements. One has only to think of the extent to which the civil rights movement of the 1960's has provided inspiration and a theory of operation for movements devoted to prisoners' rights, the rights of the disabled, the rights of many ethnic minorities, and (most dramatically) the rights of women.

What is perhaps more important for the present purpose, it has become clearer to me how central is the notion of social movements (and the informal networks which carry them) to the formation of social policy and program. One can think of social movements as the carriers of images of social reform. Movements are the persistent informal networks of reformers, sometimes surfacing and disappearing within the scope of a decade, sometimes enduring for hundreds of years. From this perspective, formal organizations are the precipitates of social movements.

In his "Social Movements and Social Organizations", Tom Burns (17) examines in detail the history of the Labor Movement, tracing it from its origins in mob violence in England to its precipitates, the labor unions.

Burns argues that the social capacity to organize expresses itself primarily in social movements, only secondarily in formal organizations. Social movements are carriers of reform, which subsequently becomes embedded in the normal institutional framework for the delivery of services. Later, new reform movements arise whos precipitates are again grafted on to the array of formal institutions.

Kenneth Geiser, a doctoral student in the Department of Planning and Urban Studies at MIT, has examined the history of juvenile corrections in Massachusetts. (18) He has described a series of states in the system, or

systems of response, which have become salient in the course of the last two hundred years. These include the House of Refuge, the Reform School, the Placement System, the Juvenile Court, the Child Guidance Clinic, and the system of Community Care. In each instance, Geiser has been able to attribute the introduction of a new system of response to the operation of a social movement led by an informal network of reformers. In each instance, that network of reformers defined themselves and their program in opposition to the perceived evils of the established system of juvenile corrections, and later came themselves to dominate the operation of that system.

Three current examples of movement networks will provide more recent illustrations of the theory proposed by Burns and developed in the historical context of Massachusetts by Geiser.

In the field of corrections, the most powerful social instrument of the 60's and early 70's was the Community Care movement -- a movement which has argued for the decentralization of correctional systems, the de-institutionalization of large prisons, and the establishment of small centers of community-based care. This movement may be traced to the influence of Richard Magee of California. Magee headed the California system in the decades following World War II, began the now-famous California experiments in probation and de-institutionalization, and built around himself a network of disciples who have carried his gospel to many other parts of the nation. This group includes Robert Montilla of Washington, D.C.; John Boone, of Virginia and Washington, formerly corrections commissioner for Massachusetts; David Fogel, formerly corrections commissioner in Minnesota; and Jerome Miller, formerly commissioner of youth corrections in Massachusetts, now holding a similar post in Illinois. Each of these men brought to his agency positions a dedication to Magee's principles,

to the underlying view that prisons breed crime, and to the concept of community care. The network is informal yet self-conscious, mutually supportive, centered around the founding influence of Magee.

o From the late 1950's to the late 1960's, Leonard Duhl, during this time a special assistant to the director of the National Institutes of Mental Health, formed a group known as the Space Cadets. The group was named ironically: their concerns had mostly to do with community psychiatry, with the newly recognized plight of the cities, and with the linkages between these two sets of issues. Duhl brought the group together around the work of John Calhoun, initially; later expanded it to include practitioners, researchers and members of foundations and government agencies who were showing concern with what was coming to be called The Problem of the Cities. Members of the group included Paul Ylvesaker, David Bazelon, Calhoun, Robert Weaver, and many others. The group had no formal status. Some of its members came together to produce a book called The Urban Condition (19), published in the early 60's -- a book which had considerable influence on the growing public awareness of urban issues. Members of the group supported one another in their various research and project enterprises. For nearly a decade, the group was associated, in one way or another, with many of the most innovative projects concerned with urban problems and mental health.

o In the early 60's, a systems engineer named Dean Wilson became convinced of the potential for systems engineering applied to public problems. Unlike the large aerospace corporations, who cottoned onto that idea at about the same time, Wilson proceeded to devote his full energies to the notion. With a few graduate students, he organized the Community Systems Foundation, which began by applying systems engineering methods

to hospital operations. Subsequently, Wilson moved to Cali, Colombia, and became aware of the critical issue of malnourishment, in developing countries, and of the potential for bringing his special brand of systems engineering to that problem. Wilson had the gift of assembling around him a small group of students and colleagues who were prepared to throw themselves fully into these projects, to maintain their ties to one another even when they were engaged in different formal organizations, and to devote their careers to the problem of reducing malnourishment. Wilson's movement network now has spawned several formal organizations, but these organizations appear to be functioning as vehicles for the network rather than as entities whose survival and growth become primary objectives for the network's members.

It may well be that movement networks play a pivotal role in every social reform enterprise; that they are both the movers of ideas in good currency and the source of energy for the development of those ideas. Movement networks are able to persist beyond the shorter life-cycles of formal programs or political administrations. They are able to muster the life-commitments demanded by the variously described objectives of social reform.

B. Invisible colleges.

I believe this term originated with Alvin Weinberg's (20) recognition, in the late 1950's, that the exchange and dissemination of scientific information proceeds most powerfully through the informal networks of scientists. Weinberg wrote at a time when interest in formal information systems, technical documentation centers, and the like, was at its zenith. Against those who saw the problem as essentially a technological one, Weinberg argued that it was a cultural and interpersonal one. The need, he

claimed, was not simply for information but for trusted information. And trust, in information as in other domains, depends upon networks of interpersonal relations.

If one conceives of scientific communities as cultures -- as T.S. Kuhn has argued in The Structure of Scientific Revolutions -- then it is perhaps correct to think of invisible colleges as intellectual movement networks. Within the culture of a scientific discipline, an invisible college is the grouping of members of the culture, bound by ties of common membership in the larger culture, by common concern with a set of questions and puzzles, by shared tasks of inquiry, by mutual respect and by trust.

Derek De Solla Price, in Little Science, Big Science defines invisible colleges as follows:

> In addition to the mailing of preprints, ways and means are being found for physical juxtaposition of the members. They seem to have mastered the art of attracting invitations from centers where they can work along with several members of the group for a short time. This done, they move on to the next center and other members. Then they return to home base, but always their allegiance is to the group rather than to the institution which supports them, unless it happens to be a station on such a circuit...
>
> Such groups constitute an invisible college, in the same sense as did those first unofficial pioneers who later banded together to form the Royal Society in 1660. In exactly the same way, they give each man status in the form of approbation from his peers, they confer prestige and, above all, they effectively solve a communication crisis by reducing a large group to a small select one of the maximum size that can be handled by interpersonal relationships. (21)

By extension, one can identify invisible colleges not only in scientific cultures but in all cultures that concern themselves with study, research and inquiry. By still further extension, one can identify a family resemblance between invisible colleges and the informal networks of practitioners -- Everett Rogers's networks of farmers,

Paul Lazarsfeld's networks of influence -- which serve as channels both for the flow of trustable information and for influence.

In the domains of inquiry concerned with social policy and program, there are overlapping invisible colleges which fulfill these functions for their members, serving as sources of prestige, status and approbation at the same time as they serve as channels for the flow of trustable information and influence.

C. Practitioner Networks.

Here, the focus is not on the relations of clients (and prospective clients) to practitioners, but on the relation of practitioners to one another and to those who may be conceived as "support systems" "problem-centered networks" and "coping networks" for them.

Thus, teachers in a school may be found to have patterned interactions through which they provide each other with mutual help for the carrying out of particular functions, support in times of crisis, a web of exchange functions reminiscent of an irregular economy, or an open-ended set of interactions like a coping network.

Practitioner networks may take the form of informal organizations which are "draped over" the structure of formal organizations. As in the case of Van Maanen's patrolmen, cited in the introduction to this paper, these informal networks may provide the nexus of mutual understandings, tacit bargains and agreements, which make the system work, in spite of formal rules which, if followed, would prevent the system from working. (It is in this sense that air traffic controlmen can bring their system to a halt simply by following the formal rules.)

Practitioner networks may not be bounded by formal organization, however. They may connect practitioners who function in different

formal organizations, serving them as channels for a sense of professional belonging, as routes to professional mobility, as sources of status and prestige, as vehicles for the diffusion of information, and as paths of influence. In this sense, practitioner networks are to practitioners what invisible colleges are to researchers.

It is their centrality to the functioning of organizations as well as their capacity to provide for the flow of trustable information, which makes practitioner networks important for a theory of network-related intervention.

D. Program Networks.

What I am here calling Program Networks are practitioner networks which connect formal governmental programs of intervention.

In Beyond the Stable State, I described the center-periphery model of policy formation and implementation -- a model which then seemed to me to be dominant in our society, and still seems to me to be so.

> Ideas powerful for action may lead to the formation of policy and then to its broad application. The problem of carrying out a policy is in many ways a version of the diffusion of innovation, a version in which the innovation is a new policy and the agent of diffusion is a government. It is not surprising, then, that in the dominant center-periphery model of policy implementation, 'central' first defines a policy and then takes responsibility for spreading it. (22)

Center-periphery models may take a variety of forms, depending on the level of specificity at which the new policy is initially formed, the role of central, and the ways in which behavior at the periphery is sanctioned and monitored. I distinguished some of these forms as follows: the promulgation of a policy, the seeding of demonstrations, the provision of teachers, the provision of resources, the extension of central control into the periphery.

> All of the center-periphery models and their combination share, to a greater or lesser extent, the assumptions that policy exists fully defined prior to its implementation; at least in broad outline; and that management of the process of implementation belongs, in critical ways to central. All of the models rest on theories of learning; they depend on certain beliefs about the ways in which central can induce local agents to behave in conformity to policy. Each model lends itself to distrotion in practice, just to the extent that its assumptions and theories do not hold. (23)

In contrast to the center-periphery model, with its apparent attractiveness and its experienced distortions, I offered several counter-examples. One of these was the Regional Medical Program. This program had been conceived in a center-periphery way, as a system for the regionalization of medical care which linked to every center of medical teaching and research a periphery of community hospitals and practicing physicians.

> Through the dissemination of information, continuing education, training, and the deployment of specialized facilities for care, new medical technology was to flow outward from a medical center. The role of 'central' was to distribute resources...and to oversee and control the diffusion of the DeBakey model throughout fifty-five medical 'regions'. (24)

In actual operation, however, the Regional Medical Program led in some states to a very different mode of operation.

> In some of the regions, coordinators devoted themselves primarily to the sorts of changes in institutional arrangements which, from the point of view of the DeBakey model, figured only as a means to an end. For them, RMP dealt with an overall improvement in the quality and accessibility of care. This required changes in the structure and interaction of the institutions concerned so as to 'knit together components of the system'. (25)

In these regions, coordinators used the program, for example, to connect medically rich resources in one area to medically needy counties in another; they got several large hospitals in ghetto areas to take responsibility for care in their own backyards; they fostered coalitions

of community hospitals for the purposes of joint purchasing and planning.

> RMP-central responded to these initiatives,
>
> ...not by punishing the 'deviant' coordinators but by beginning to reformulate central policy. Transformation of the system of medical care' began to become the central concept of the program.
>
> But from this several things followed:
>
> o There was no model for systems transformation which could be spread uniformly over the region. Each region had its own starting conditions and presented its own special problems.
>
> o Each regional process had to be regarded as essentially open-ended. It could not impose a medical care system on the region. It had to be committed to engaging the emerging issued of medical care whatever these turned out to be.
>
> Central's role, therefore, had to shift. It could enunciate themes of policy -- "transformation of the medical care system", 'equity of access to care' -- but it could not formulate and impose a program for adoption by the regions. On the contrary, the generation of central policy had to be inductively derived from the regions. Regions developed variations on the central themes. (26)

Within the program, then, attention began to focus on the learning processes by which one regional effort learned from another. Central became something more like a switching point, channeling flows of information and ideas throughout the range of regional programs.

Within such a program, practitioner networks cutting across regional programs became essential vehicles for program development, for evaluation, and for the restructuring of policy. The informal networks of practitioners became key to the entire system of governmental intervention.

This typology of informal networks is far from exhaustive. Many other kinds of networks, and perspectives on them, might have been introduced. Moreover, in more than a few cases, the different names I have employed

signify different ways of describing (different selections of features from) the same things. Thus, self-help, coping and practitioner-client networks have more than a little in common. So do practitioner networks and invisible colleges. Indeed, some of these networks I have defined as special cases of others. Nevertheless, the distinctions seem to me important to make because, I believe, they have implications for different kinds and strategies of intervention.

What is also striking is that, although a great deal of research energy has gone into the study of informal networks, various disciplines seem to have pre-empted the study of certain networks and ignored the others. Support systems, for example, have been the special concern of community psychiatrists and mental health professionals. Irregular economies have been the special concern of those interested in challenging prevailing economic theories of development and inability. Invisible colleges have tended to be central for historians of science and technology. There has been considerable specialization in the allocation of scholarly attention to informal networks.

As a consequence, we have not had much occasion to consider the meaning of the existence and functions of these several sorts of network <u>together</u> from the point of view of their relevance for intervention in the domain of social policy.

Section 2: A Framework for the Consideration of Network-Related Intervention.

The rather widespread concern among researchers and policy analysts with the phenomena of informal social networks may perhaps reflect some growing awareness of the shortcomings of formal social policy and program.

For at least the last twenty-five years, we in the United States have tended to think of social policy, social program, social services in the following way:

> We identify a "need for service". That is, some description of a need for service comes into good currency and becomes expressed in legislation or in other forms governmental policy. We define that need in terms of the formal services which are thought to respond to it. The design of services then takes account of the distribution of funds, the forms of auspice, the training and deployment of service providers, and the management and evaluation of service provision. We treat things that go wrong with our design as problems in the formal service system -- for example, gaps in coverage, difficulties of access, lack of co-ordination, misperception of goals, underfunding.
>
> "Formal services" are those that are presumed to have clear legal status and accountability, an explicit contract between provider and consumer, explicit standards for performance, provisions for entitlement to service.

This approach has dominated our thinking about social services in the fields of health, mental health, criminal justice, housing, and services to the handicapped, among others.

This posture toward social services in turn reflects a far broader cultural faith in formal structure, formal organization and formal planning. This faith expresses itself in many different domains and at many levels of aggregation. One finds it, for example, in individual organizations such as business firms and universities, where it has long been normal to respond to perceived problems through such formal strategies as re-organization, regulation, and the introduction of new systems of control, (systems for budgeting and systems for planning and monitoring of performance). Such devices as "zero base budgeting", PPBS, and "Management by Objectives" are some of the symptoms of this tendency. Underlying it is the assumption that failures in performance reflect defects in formal systems of rules and can best be remedied by the redesign of those systems. Underneath this, in turn, there is a model of human nature and a theory about the control of behavior.

In the domain of social policy, over the period of those presidential administrations which espoused broad-based reforms, there has been a growing sense of unease over the perceived failure of those efforts at reform to live up to expectations. And there has been a wide range of diagnoses of the failure of social reforms, ranging from "underfunding", to "a mistaken model of the relations between supply of social goods (such as housing or health care) and the demand for them."

Certain findings and interpretations, however, suggest that some sources of disappointment may lie in the formal service model itself. For example,

Certain formal service interventions appear to have had the

the effect of disrupting existing informal arrangements for the satisfaction of demand, creating new dependencies on formal program, only to leave the clients for those services high and dry when the formal program (for reasons of economy or political expediency) is withdrawn. The U.S. food-distribution programs for developing countries have been criticized on just this basis. In some cases, formal service interventions which have been programmed without regard to the existence of informal social networks (irregular economies, coping networks, support systems) have been found to be disruptive of those informal responses to social need. Formal regulations, designed to assure acceptable standards of service provision, have made whole segments of the informal service sector illegal. At the same time, the investment in new formal service systems has been in no way adequate to demand.

This description applies, for example, to the effects of day-care licensing provisions on the system of "neighborhood mannies" and to the effects of the extension of uniform building codes on the "code enclaves" in which self-help housing has flourished. In some fields, such as services to children, the progress of social policy thinking has included a growing recognition of the number of persons "at risk", in relation to the problems around which those services are defined, and a growing recognition of "gaps" in service provision. Thus, in the special areas of child disability, mental retardation, mental illness, abuse and delinquency, policy-makers have tended to diagnose each perceived failure in the performance of the last round of program as a failure either to reach

enough of the population at risk, or a failure to provide for sufficient continuity of care. In this area, social service designers have tended to define their necessary scope and mission in terms of an ever-extending population of clients, and an ever-increasing incursion into the life-space of their prospective clients.

When these ideas are translated into requirements for professional manpower, the results are shocking. In 1969, OSTI (in its report to the Joint Commission on Mental Health of Children) estimated the manpower requirements for the provision of services to the various categories of children judged to be at-risk, assuming then-current staff/client ratios. It appeared that more professional staff would be required than could possibly be supplied, given the projected cohorts of persons available for training and the training capacity of institutions which existed or were planned.

For reasons like these, among others, there is some considerable basis for skepticism about the formal service model. But it does not follow that there is available a map of those alternative social policies and service-system designs which would take fuller account of the existence and the utility of informal serial networks.

I intend in this section to describe some of the principal types of network-related intervention in the domain of social policy. Some of these types are already recognized and can be illustrated with examples drawn from recent experience. Others of them are, so far as I know, as yet untried. My purpose is to [illegible] a repertoire of network-related interventions.

Network-sensitive intervention and evaluation.

One may take informal networks into account, either in the design of policies and programs or in their evaluation, without going so far as to try to create, enhance of use them. In the simplest terms, one can ask, How can we design and carry out this program so as to avoid disrupting or constraining informal networks? And, how in our evaluation of this program can we take account of its impact upon informal networks?

(1) The scope and context of regulations.

As indicated above, the adoption of licensing requirements and regulations for the avowed purpose of assuring a minimum standard of service quality and safety may also have the effect of driving out, or rendering unlawful, the practitioner/client networks which respond to large segments of demand. We have already given instances of this effect in the cases of day-care and self-help housing. One might also include here the provision of services to the handicapped, to the mentally ill and to the elderly. The recent emphasis upon de-institutionalization of correctional and mental health facilities, and the resulting scarcity of "community care" facilities, raises the issue again in a new form.

Network-sensitive evaluation would focus attention on the need to assess the scope and contributions of the practitioner/client, coping and self-help networks already in existence, and the likely effect upon them of alternative system of regulation, inspection and enforcement.

(2) The effects of various policies and interventions upon patterns of physical proximity.

Architects and planners have long been aware -- intensively aware since the early 60's -- of the extent to which locational factors affect the informal social relations upon which quality of life depends. It would not be too much to say that for some schools of architecture and planning this awareness has transformed the discipline, to

the point that a thorough description of the perceived relationships between social networks and spatial factors would cover nearly the whole of the fields of environmental design, urban and regional planning.

Essential to this awareness is the notion that informal networks of many (though not all) kinds are dependent upon the spatial proximity of the members of the network and on the ways in which the physical environment facilitates the various sorts of human contact on which the functioning of the network depends. Policies and interventions which threaten to disrupt such networks are then perceived as dangerous and undesireable; for example,

- The clearing of land, the construction of transportation systems, the building of commercial and residential facilities, which would scatter or weaken community networks.
- The construction of service facilities in center-cities in such a way as to produce a concentration of elderly, and handicapped in those areas -- preventing the dispersal of the handicapped to active and stable communities which could then respond to them, and impeding the re-development of land in ways that could lead to the creation of new communities in the center city. (27)
- Housing, finance, zoning and land-use policies which cause urban neighborhoods to change their mix of racial and socio-economic groups, undermining the competence of community networks to cope with social problems.

What planners find extraordinarily difficult, however, is the development of models of location and mobility which would allow them to make credible predictions of the effects of various spatial arrangements on the functioning of informal networks.

While these two instances are schematic and no more than illustrative, they suggest, at any rate, what network-sensitive design and evaluation of policy might entail.

A matrix of network-related intervention types. Figure 2 displays a repertoire of kinds of network-related intervention in the form of a matrix. Across the top of the page, the headings indicate each of the several species of helping networks, organizational ecologies and secondary networks. Along the side of the page, I have arranged four categories of intervention. The first "network utilization", refers to interventions aimed at mobilizing existing informal networks for some particular purpose, for example, the support of a person in time of crisis. "Network creation or enhancement" refers to interventions whose purpose is to bring informal networks into being, or to strengthen or extend them. Network-enhancement might take the form of building network capacity, while still retaining its informal character; or it may consist in measures aimed at introducing formal elements into the network.

I have distinguished the direct from the indirect enhancement of informal networks. The first refers to those interventions -- consultation, teaching, investment, development of linkages -- which are undertaken with an eye to network-building as their immediate consequence. The second includes those interventions, such as policies for the dispersal or concentration of populations, which are conceived as having more distant effects upon networks. (Thus, a policy favoring investment in housing rehabiliation might be thought to encourage home-owners to remain in their neighborhoods, in improved circumstances, tending to preserve and thereby strengthen existing community networks.)

In the cells of the matrix, I have named examples of the various categories of intervention. (28) Empty cells are as interesting as full ones, however; where they do not merely indicate the author's ignorance, they suggest possible areas for the invention of strategies of intervention.

Let us consider the matrix, column by column.

Helping Networks.

I can identify no examples of interventions aimed at utilizing, creating or enhancing irregular economies. The omission seems to me to be significant and reflects, perhaps, the very recent surfacing of this notion as one that has relevance for policy.

In considering coping networks, I have limited myself to those informal networks of the elderly which came to light in our recent study of Cambridge residents. While I know of no example of "network response", it seems to me a possibly interesting category of intervention; it would consist in a practitioner (social worker, community aide) bringing together members of the elderly person's coping network in order to help that person overcome some temporary problem (increased disability while recovering from an illness, for example) or to extend or modify the kinds of help given through that network.

The following kinds of interventions might be directed at the enhancement of coping networks:

. "Matching" services: a brokerage/referral service which would match persons capable of providing small services (rides to the doctor, help with the cleaning, shopping) with elderly users of such services.

. Selective support of formal organizations: Certain kinds of organizations -- churches, lodges such as the Moose or Forresters, certain centers for the elderly -- appeared to function as sites for the creation and operation of informal networks of the elderly. These could be selectively supported in carrying out this sort of function.

. Transportation and safety: Many of the elderly are prevented,

by the cost or inaccessibility of transportation, or by their fears for their safety, from using more fully the coping networks which are already available to them, or from forming new ones. Investments in para-transit and in public safety measures could respond to these impediments.

. Housing types, physical design: Certain housing locations for the elderly appear to be more conducive than others to the formation and operation of coping networks; in site-planning and modification, certain physical features of the environment seem to serve as magnets or cluster-points for networks.

Support systems.

Sarason has described the "network therapy" (Attneave and Speck) in which practitioners seek to help a person in crisis by mobilizing his own informal support system, involving them in the therapeutic process.

In additions, we can identify:

. Problem-centered groups: Robert Weiss, among others, has organized groups of persons suffering similar kinds of loss -- widows, the newly separated, for example. These function as therapy groups, in which the therapist become members of one another's informal support system. David Clifford has proposed the formation of a range of similar types of groups, on the basis of his Michigan study.

. A project, sponsored by the National Institute of Mental Health in Taunton, Massachusetts, seeks to build community-wide support systems, linking formal and informal members of them, so as to improve their capacity to respond to persons in crisis. Sarason has described the projects of Curtis and Garrison, whose reports describe similar objectives

and styles of operation. Gerald Caplan's approach to the theory and practice of community psychiatry provides a tradition and a theoretical basis for such enterprises.

Practitioner/client networks.

Two forms of network utilization may be distinguished here:

(1) Brokerage and referral services, which help clients to identify and connect with formal and informal resources. M.I.T., for example, has established for its married students a day-care referral service. Here, in effect, a formal referral organization takes the place of informal referral, extending the existing informal network connecting potential users with informal providers.

(2) Advocacy: Hubert Jones, formerly of the Roxbury multi-service center, has carried out and described a process of organizing individual users of formal services (those associates, for example, with welfare, health, job-seeking and training). Jones progressed in his own approach to service-delivery, form one-on-one client meetings, to the organizing of clients so that they could become more effective at getting access to services responsive to their situations.

Sarason has described the day-care intervention program of Collins and his associates, who intervened not only to connect potential users to informal providers but to improve and extend the user/provider network.

Self-help networks.

Taking self-help housing as our context, we can identify three quite different approaches to network-enhancement which are suggestive of

applications in fields other than housing:

(1) Enhancing the owner-builder network.

Ledogar and Grindley have described some of the ways in which gaps might be filled, weak-links strengthened, and overall effectiveness improved, in the networks of owner-builders they have studied. Their approach consists in noting, for example, that owner-builders experience problems in obtaining small, first-cost construction loans, or in getting low-cost help installing and inspecting electrical systems. Ledogar and Grindley propose to institute services which would fill these gaps, and to combine them with information and referral services aimed at extending and strengthening the owner-builder network.

(2) Self-help co-operative

These have taken a number of forms. So-called mutual-help programs have worked, especially with migrant laborers in the West and South, by setting up formal co-operative organizations through which migrant families can obtain small loans for land and materials, share labor in the construction process itself, and help one another in maintenance tasks. In the Rochester Better Living project, Weldon Meyers developed a variant of this theme, here focussing on the rehabilitation of houses in "gray areas" of the city; Meyers built a formal organization through which families could purchase houses, obtain small loans and technical assistance in rehabilitation, and pay off loans as their earnings increased.

In both kinds of programs, formal institutional arrangements are made to substitute for informal networks. Movement in the direction of formal co-operatives appears to be one of the principal options for self-help network enhancement.

(3) Site and services.

John Turner has described and helped to implement so-called "site and services contracts", through which squatters are enabled to gain access to land, materials and utilities. I will describe this approach in section 4.

In a more generalized way the three approaches to the enhancement of self-help networks might be described as follows: fill the gaps in existing networks; turn the network into a formal co-operative; encourage the operation of the network, in a structured way, by furnishing an infrastructure on which it can build.

"Indirect" approaches to the enhancement of helping networks are less in evidence. I suspect that this concept has not entered broadly into thinking at the policy level (inless it is in the field of mental health). However, two related policy interventions suggest themselves. The first consists in identifying the interventions of the sorts described above as a legitimate activity for governmental support. In particular domains of social policy -- day-care, service to the elderly, youth services, to take three cases -- government agencies might address themselves to the task of identifying and describing existing helping networks, supporting existing projects of network-utilization and enhancement, and creating and supporting new ones. Because these sorts of projects are poorly understood, the tasks of design, deployment, monitoring and evaluation would need to become objects of inquiry in their own right; we would

need to learn to become competent at fostering interventions of this sort. Secondly, as Sarason has also pointed out, attention would need to be paid to training and education of practitioners. Sensitivity to helping networks needs to be increased, and the arts of network-utilization and network-enhancement need to be described in ways useful for learning.

II. Organizational ecologies.

A. Functional ecologies. In the field of social policy, the utilization and enhancement of functional ecologies touches closely on the field of service systems design. It has been widely observed that public service agencies tend to acquire lives of their own, that real-world situations tend to move out from under the agencies designed initially to address them, and that, from the point of view of clients seeking service, there is often no "service system" at hand.

These observations have been made in contexts of health care, nutrition, housing, manpower and employment, corrections and rehabilitation -- to name only a few. It has become a commonplace that "service systems are actually non-systems" and that "service agencies concern themselves with schooling rather than education". Theodore Leavitt's "marketing myopeia" has its analogue in the social service sector -- with the important difference that response to it must take the form of inter-organizational activity.

Let us take as a case in point the special area of services to the blind. In "The Blindness System" (29) I described the functional ecology associated with blindness in the following way:

> ...In the period between 1900 and the 1930's, the blind were identified primarily as children and as adults of working age...Today the makeup of the blind has changed. The population of the severely visually impaired in the United States is now heavily weighted toward (1) the aged blind; (2) the multiple handicapped, especially among children; (3) the poor ethnic minorities, especially the low-skilled; (4) those with significant residual vision...the blindness system today is an array of agencies and services dating from different periods, based on different assumptions concerning the character of the blind population, pursuing different goals, and using different technologies. The effect is rather like complex geologic strata in which substances of widely varying origins and characters exist side by side...
>
> The result is that the official blindness system provides services to only a relatively small fraction of those who are actually blind and eligible for assistance...only about 20 percent of the total blind population are actually being served today...The 80 percent who receive no services tend to be those without apparent potential for employment or educational advancement...Such persons are shunted off to other systems which provide minimal income maintenance or custodial care or are ignored. A substantial portion of the 80 percent may receive some form of support from the informal system of friends, family and community...

From the point of view of a legally blind person in the "80 percent," the blindness agencies, the "other systems" and "the informal networks" present themselves as a maze to be run. I proposed a number of responses, of which two are relevant here.

> ...Establishment of ombudsmen for the blind. Their function would be to help blind persons negotiate the service system. Independently funded, they would represent the interests of the blind in dealing with the agencies. (30)

These ombudsmen would be formal agents whose job it would be to facilitate utilization of the network, formal and informal. Secondly, I proposed that "integration of the blindness system" (a then, and still, favorite response to a diagnosis of fragmentation of services) be undertaken through the institution of "network managers":

> All such forms of integration would require the establishment and management of networks of service -- that is, of linked arrays of agencies. There would be far greater emphasis than at present on infrastructure functions like admissions, screening, diagnosis, referral, "tracking" individuals through the system, guidance and evaluation. Network management would emerge as the central form of leadership within the system. (31)

Network management, particularly when it includes management of access to and negotiation of informal as well as formal providers, is a form of network enhancement peculiarly appropriate to functional ecologies.

Its counterparts, in the area of "indirect intervention," are the policies of "purchase of service contracting," which would allow for central contracting for service either from formal agencies or from informal providers, and the policy of "direct payments to users" -- as in the case of educational vouchers -- which might also be extended to include informal practitioners.

Community networks. Sarason's descriptions of "Community Team Problem-Solving" and "Crisis Intervention" are examples of interventions directed toward the utilization of community networks.

His very detailed description of the "Essex network" in his recent book recounts the history of efforts (his and others') to carry out a program of interventions designed to build the capacity of a community network. Herbert Shepard's work in Middletown, Connecticut, during the late 60's and early 70's, addressed itself to a similar task, employing means which emphasized group-training.

A somewhat different history of intervention is to be found in Eric Trist's paper, "A Concept of Organizational Ecology."

Here, the scope of the network is regional and the focus is on competences more nearly related to regional economic development:

In the second class the fact that all the organizations belonging to the domain are represented in the referrent organization gives the referrent organization an aggregate character. This enables it to cohere the organizational field in a way which builds consensus among the members. It can thus maximize collaboration and minimize conflict, lower resistance to change, and thence undertake relevant and effective innovation. These are critical aspects of domain development.

One such organization, with which I have been working for the last three years, is the Labor-Management Committee of the City of Jamestown, a small manufacturing town in upper New York State. This Committee, having established a community-wide constituency, has proved to be innovative and effective to an unusual degree.

In the early 70's, when the rest of America was booming, the largest plant in Jamestown closed down permanently, and others moved south, so that unemployment rose to over 10 per cent. Labor-management relations were notoriously bad and disputes frequent. No new firms could be enticed to come in and still others were planning to depart. In the crisis thus created, a young charismatic mayor was elected with bi-partisan political support. As a result of this underlying consensus, his prestige was sufficient to enable him to call management and labor together

> All such forms of integration would require the establishment and management of networks of service -- that is, of linked arrays of agencies. There would be far greater emphasis than at present on infrastructure functions like admissions, screening, diagnosis, referral, "tracking" individuals through the system, guidance and evaluation. Network management would emerge as the central form of leadership within the system. (p.37)

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in a way which had not previously been possible. He invited the general managers and local union presidents of all unionized plants in the area (and these were the large majority) to begin meeting regularly in order to transform the climate of industrial relations. With most of them responding, this goal was achieved after a year of sometimes exceedingly stormy meetings.

It was then found that the stock of key in-house skills in the dominant industries, sheet-metal work and furniture making, was becoming depleted. For these skills were carried by the older workers. There were no systematic training schemes and many of the young workers were leaving the area. The Committee therefore sponsored a skills development program in which all members could share. As they did not themselves have the resources to implement this scheme, they drew on the local community college, which has previously had little connection with local industries. The college in turn drew in the county manpower authority and the education extension services of New York State. Needed courses were put on in the plants concerned on any shift, including hoot owl. Some of the most skilled older workers were trained to be instructors. This development illustrates a process which my French Canadian planning colleague, Michel Chevalier (2), has called assembling a cast of organizational characters. The assembly of such casts is a key undertaking in the development of organizational domains.

Next, in-plant labor-management committees were formed in most of the member plants and the Committee obtained specialist resources to develop quality of work programs, based on participation and job redesign, aiming to increase productivity as well as job satisfaction. There are now more than 40 such projects, of 10 different kinds, going on in 12 plants. Through seminars and workshops the experiences of these projects are being shared so that a field-wide learning process has begun. In domain development learning needs to be field-wide.

As the result of these developments a major engineering company has been attracted to the town. Not only have no more companies left the area but some have expanded, and four or five, which were in difficulties, have been salvaged on the initiative of the Committee. Funds were obtained from the local banks, new professional management found and in one case the workers put in their own money. That is to say, the Committee has taken on the task of industrial development in the interests of the community as a whole.

This chain of events has attracted national attention which has made it easier for the Committee to mobilize resources both Federal, State, university and private. Resource mobilization, as distinct from resource allocation, is another critical process of domain development.

The Jamestown area has links with the national trunk and railroad routes and the Committee has recently adumbrated a scheme for a transport cooperative to deliver the goods produced by any plant in the area to the nearest main junctions. Identifying missing institutions is another critical activity in domain development.

In addition, the Committee has re-appreciated the region in which it is located. At first it took this to be the administrative county, but the northern part of the county has few functional connections with the Jamestown area whereas functional connections are many with the northern part of Pennsylvania, the neighboring state to the south. It has now identified its region in terms of a concept of community of interests among members of the domain. This re-appreciation has brought into being possibilities which could not be perceived before, such as the transport cooperative. This illustrates the importance in domain development of getting the boundaries right, while a recent decision to enter the public sector shows the importance of finding new directions.

A number of other small communities have become interested in what has become known as the Jamestown model and these are in the process of forming a network. When I return to the U.S. my research team and the Committee's staff coordinator will reposition ourselves in the network as such, rather than relating to it simply through Jamestown. This is the process which I call domain transformation, as there will now be no central referrent organization. Among other methods we shall use a process similar to the Australian search conference to assist the transformation.

Meanwhile, we are seeking funds from a Federal agency not so far approached, to support the training of eight local personnel to work with the Committee; two from management, two from the unions, two from the public sector and two from the community college. This illustrates the principle of building up capability for self-sustaining growth. (32)

I have quoted from Trist at length because, it seems to me, his project represents a very different approach to the enhancement of community networks than the one Sarason has described, yet shares with it a fundamental appreciation for interventions attuned to organizational ecology.

At the level of indirect intervention, we encounter all of those policies which focus on the interaction between community network capacity and the regular, predictable proximity of groups of people. This category of policy includes:

. Policies, of the sort recommended by Julian Wolpert of Princeton, to disperse the disabled among blue-collar and lower-middle income neighborhoods:

> The best sites seem to be in blue collar and lower middle

> class social areas which contain a community focus of shops, services and mass transit, and strong community institutions. These are the areas that can absorb reasonable numbers of handicapped people without tipping...The advantages, of course, of dispersing handicapped people into stable communities is that much of the social support can come from the communities themselves rather than only from professional targeted services...the welfare of elderly and disabled people requires not only low cost housing and services but the presence of compatible and stable neighbors and active community institutions. (33)

. Policies of "Neighborhood Conservation," of the sort championed in New York City by Hortense Gabel, which seek to keep "stable neighborhoods" together, emphasizing housing rehabilitation, services and community organization as means of enhancing existing informal systems.

. Approaches to environmental design -- to the physical planning of neighborhoods and the site-planning associated with major residential, business and service facilities -- which attempt to use physical space and locational patterns in such a way as to sustain existing informal networks and to foster the creation of new ones.

One might also add, in the category of indirect intervention, governmental policies which recognize projects of the sort undertaken by Trist and Sarason and program their support.

Secondary networks.

Movement networks, so far as I know, have not been identified as entities relevant for governmental intervention. Rather, the ideas in good currency launched by movement networks ("open education," as a case in point) have tended to become embedded in legislation and program, and then to be subjected to the prevailing formal service model of intervention.

Invisible colleges, in their more general form of "networks for the flow of trusted information and influence," represent the prime focus of many different sorts of intervention aimed at the diffusion of innovation. "Network utilization," in this area, includes on the one hand, the agricultural and public health enterprises recorded by Everett Rogers, and the day-to-day business of specialized marketing and merchandising in the business sector (for example, the operation of "detail men" in the pharmaceutical industry). Here, practitioners such as agricultural extension agents and pharmaceutical detail men exercise, in their day-to-day work, an awareness of these networks and a capacity to mobilize them for the purposes of diffusion, sometimes called "sales." As far as I know, however, there is no outstanding example of intervention aimed at creating or enhancing invisible colleges.

Practitioner networks have been the focus of most of the interventions which have become visible, in the last 10 years, in the field of education. The TTT project, undertaken for the Office of Education by Donald Bigelow, and the current "networking" efforts of the NIE, are all of this sort. They have taken as their scope the intra- and inter-institutional networks of teachers, principals and administrators, as well as faculty members in teacher colleges and (in some cases)

representatives of community groups interested in issues of public education. Their objectives have included the strengthening of practitioner networks as channels for information, for technical assistance, and for the diffusion of innovations in education.

The Leadership and Learning Cooperative (founded by Charles E. Brown at EDC in Newton, Massachusetts) is a most unusual initiative in this field. Brown and his colleagues have attempted to create a network of principals and superintendants of schools in some 60 communities around the Boston area. Their pattern of work has been one of one-on-one consultation with individual principals, sessions in which they work with principals on the issues (very largely interpersonal) which loom largest in the principal's own picture of his job. They have then organized groups of principals around problems felt to be of common concern and have coubined consultation to school organizations with individual consulting. Like Robert Weiss (with his problem-centered groups), they have undertaken long- relations with their clients and have encouraged the formation of informal support groups within which principals have been able to help one another.

The key to their effectiveness, I believe, has been the skills of practitioners (skills of entry, consultation and therapy) and their commitment to developing and criticizing their own theories of intervention.

Again, "indirect intervention" would include a recognition of these sorts of network-utilizing and network-enhancing projects in the form of policies of selective support and practitioner-training.

Program networks, of the sort described earlier in this paper, have been the object of deliberate governmental intervention, to my knowledge, in a few instances -- such as the instance of the Regional Medical Program. There has been little, if any, recognition of their enhancement as a field for intervention in its own right.

Section 3: Dilemmas of Network-Related Intervention.

The kinds of intervention outlined in the previous section pose a number of paradoxes and dilemmas which ought to be taken into account in any consideration of network-related intervention. They are summarized in Figure 2, and can be set out roughly as follows:

(1) In spite of the disposition on the part of some observers to believe that informal networks are superior in quality and equity to formal services, the quality of service provided through informal networks is apt to be highly variable and the distribution of services is apt to be inequitable.

(2) The effort by government to support, enhance and control informal networks tends to conflict with certain espoused principles of government to interfere with certain informal network processes; as a result, governmental intervention is likely to fail, or if successful, to convert informal networks to formal systems.

(3) The very success of informal networks may put excessive demand upon network capacity.

Quality and equity. How good are the services provided through informal networks? The left-hand column in Figure 3 summarizes what might be called the formal service ethos. On this perspective, quality, equity and responsiveness of services are to be assured through the efforts of professional providers who deliver services under formal contract, in conformity to standards of performance for which they are publicly accountable. It is of the essence, on this view, that services be publicly visible, contractually bound, and subject to external control. It is also of the essence that service-providers be professionals who are uniquely equipped to meet high standards of performance. Through the operation of these two factors--professional competence and external control--it is

Figure 2

INFORMAL NETWORKS CONTRASTED WITH THE ESPOUSED THEORY OF FORMAL SERVICE SYSTEMS

Formal Service Systems	Informal Networks
1. Visible to formal monitoring, regulation, evaluation; able to enter into formal contracts, and be held accountable for performance.	1. Invisible to formal monitoring, regulation, evaluation; unable to enter into formal contracts, and be held accountable for performance.
2. Quality of professional services kept uniformly high, distribution of services kept equitable, by external control and enforced accountability.	2. Quality of services variable, distribution of services equitable.
3. Success dependent on structure, independent of particular persons, performance predictable.	3. Success dependent on particular persons, performance unpredictable.
4. Amenable to orderly replication, scaling up.	4. Not amenable to deliberate replication, scaling up, without the danger of outstripping capabilities for leadership, network capacity, sense of shared values and significance.

believed that formal services can be delivered in ways that are predictably and uniformly of high quality, and distributed in ways that are equitable.

The formal service ethos has dominated thinking about many service domains, including health, education, mental health, welfare, housing, criminal justice, manpower development, and service to the handicapped and the elderly. It is the point of view underlying such legislation as made up the social programs of the New Frontier and the Great Society.

But as the social service programs of the sixties moved from legislation to reality, they came to seem profoundly disappointing to many observers. Indeed, many of those who had initially been protagonists of these social programs later became their critics. One group of critics embraced what I will call the Romance of Informal Networks. They argued that the social programs of the sixties failed because of their mistaken reliance upon the formal service ethos. People are better able to provide for themselves, they argued, than others are able to provide for them. Formal social programs are apt to miss what is truly responsive to human need, to become caught up in their own bureaucratic requirements, and to undermine the initiative and independence of those in need. Self-help is preferable to governmental help. Informal networks of service and exchange are preferable to governmentally supported, professionally mediated formal service systems. (34)

This critique of the professions and of formal services has spread from one service domain to another until at present it encompasses virtually the whole field of social services. Thus, in the field of health services and mental health, critics have tried to show that professionals are able to provide very little help and, in fact, create

groups of clients who become insidiously dependent on professional services and service-providing institutions. (35) In the field of disability, critics have argued that service-providing institutions create client roles which are roles of dependence, attuned to the needs of service-providers rather than to the needs of the clients themselves. (36) In criminal justice, the critique of professions and of professional institutions such as the penitentiary has led to a social movement devoted to the concept of "community care" which is based, at least in some versions, on freedom from the constraints of formal service systems. (37)

Such criticisms may be divided into two parts. The negative criticism of professionally dominated formal service systems may be distinguished from the positive belief in the superiority of the self-help provided through informal social networks. The former has much evidence to support it. In fact, there is ample evidence that many of the social programs of the sixties failed to achieve their goals, that professionals did not hold the key to the resolution of social problems, that formal service systems often responded to the interests of the provider rather than to the needs of the client, that the formal service ethos did not assure uniform quality and equity. But what is the source of the positive belief in the superiority of informal networks?

If it is true that there are many anecdotes of the success of self-help housing, of community care for the disabled and the elderly, and of informal day-care networks--to name only a few--there are also plenty of anecdotes which reveal the variable quality of the services provided through informal networks, in fields as diverse as day-care (38) by neighborhood nannies, health-care by informal healers, and irregular economies which make up the coping networks of the poor.

Furthermore, there are serious questions about the equitable distribution of services provided through informal networks. Informal networks are preferential. Those elderly persons who are part of a particularly rich network of exchange and concern are more likely to receive the help they need than are those whose networks are more impoverished. Informal networks are discriminatory, in the sense that ethnic or socioeconomic features of the person may, in some contexts, function as prerequisites for membership. And informal networks are political. In the network of a ward-boss system, for example, those who are more powerful or more allied to power, have a better chance of gaining from network membership; and many community ecologies have some of the political characteristics of the ward-boss system.

In the face of these kinds of counter-examples, belief in the superior quality and equity of informal networks seems more nearly a matter of faith than of evidence. But a faith of what sort? I suggest that the Romance of informal networks springs, at least in part, from the Romantic Movement which, as current events might convince us, is still very much alive in our midst. The belief in the superiority of the informal is a species of belief in the superiority of the natural. Since Rousseau, the myth of the Natural Man has haunted Western consciousness. Under the influence of this myth, it is possible to believe that human rights are natural, and their violation an abrogation of Nature; that true happiness lies in a recovery of man's natural state; and that wisdom is best acquired by direct commerce with Nature (a belief which has not a little to do with the practice of placing universities in rustic settings). Certainly, in the history of American thought, there has been great emphasis

upon these ideas, from the role of "natural rights" in the writings of the Founding Fathers to Thoreau's belief in nature as a symbolic rendering of Transcendental truths. What could be more natural, then, than that we should find a way to infuse our Romantic faith into social policy?

All that is necessary is to connect the idea of Community (and of informal networks as an aspect, or surrogate, of Community) with Nature, and to identify Government with Artifice. Let informal networks be natural, and governmental intervention artificial, and we have a frame of criticism which makes it appear obvious that residential communities ought not to be disrupted by government action (as in the writings of Herbert Gans and Jane Jacobs), that stable residential networks are superior to professional service providers as a response to the needs of the disabled (as in the writings of Julian Wolpert), that "community care" is superior to institutionalization,--and, most generally, that informal networks are superior to formal service systems.

My point is not that these specific criticisms are mistaken, only that they are not obvious. The superiority of informal networks to formal institutions is a proposition to be explored and tested in each instance of its assertion. The myth of the formal professional service ethos has its counterpart in the Romantic myth of the superiority of informal networks. There is little evidence, at least in the context of the social programs of the sixties, that formal professional services are broadly effective in achieving their espoused objectives and values. And there is little evidence that informal social networks are broadly superior in responsiveness, quality and equity to the offerings of formal service systems.

The perils of network-related intervention by government

When government intervenes in such a way as to mobilize or enhance informal networks, there is a risk both to government and to the networks. The risk to government comes from certain principles and values which informal networks are likely to abrogate. The risk to the networks comes from the actions governments may take in order to protect their espoused values.

Suppose, for example, that government espouses a commitment to allocation of services on the basis of need, merit, and equity, whereas informal networks provide access to services partly on the basis of need, partly on the basis of merit (as measured by the ability and willingness to offer other services in exchange), but also on the basis of kinship, friendship, or political allegiance. Or suppose, again, that government espouses commitment to certain principles such as freedom from racial or sexual prejudice, and that particular informal networks are based on race or on sex. Government then finds itself in a dilemma. How can it honor both its wish to support informal networks and its commitment to its espoused principles? Moreover, the likelihood that such issues will arise is far from negligible; for it is entirely characteristic of informal networks that they are preferentially structured around consideratios of kinship, friendship, political allegiance, race and sex.

Suppose, on the other hand, that government attempts to couple its support of informal networks with rules and sanctions aimed at protecting the values and principles that government espouses. Suppose, to take a poignant example, that government couples its support with the requirement that services be offered consistent with the principle of Affirmative Action?

By what mechanisms would government assure the network's conformity to this rule?

At minimum, it would be necessary to achieve the conditions of a formal promise--that is, a contractual agreement for which the network can be held accountable. But this is a contradiction in terms. An informal network cannot enter into a formal contract. In order to do so, the network would have to become a formal organization; it would have to establish collectively shared, formally binding rules for collective decision, delegation of action, and membership.

In such a transformation, the invisible network would become a visible, publicly accountable organization. Aside from the paradox of the transformation itself (government, desirous of supporting informal networks, converts them into formal organizations for the purpose of supporting them), there are the following risks to the network:

. The organizing process required by government is necessarily a political one and may disrupt the fabric of relationships on which the network depended. Something very much like this happened when, in the mid-sixties, the Office of Economic Opportunity tried to hold community elections in order to establish neighborhood organizations of the poor. (39)

. The strictures enforced by government in the interest of the safety and quality of services may eliminate a substantial number of those engaged in the informal provision of services. Thus, building codes and personnel requirements applied to day-care made illegal operators out of thousands of neighborhood nannies. Building codes and standards associated with mortgage eligibility requirements have in many localities made self-help housing illegal. (40)

. The very infusion of resources may stretch and stress the network, triggering competition among network members, attracting new demand which

upsets a delicate balance of resource and requirement.

Of course, some of these same dangers are inherent in the very success of informal networks, quite independently of governmental intervention. Growing demand for services may outstrip the network capacity for service, may consume the slack on which the network depends, may demand an expansion beyond the capacities of a key person (such as the Essex Network's "Mrs. Dewar").

But what is most central from the point of view of our present concerns is that the very interest in predictability and control exercised by government in order to protect principles that appear good in themselves, carries a serious risk of converting informal networks into formal organizations, making the invisible visible, distorting and disrupting the informal system of relationships which makes the informal network work.

Section 4: An Approach to Network-Related Intervention.

The risk of distorting or destroying informal networks by supporting them must be balanced by recognition of the very real shortcomings of the formal service ethos. Formal service systems also turn out, when they are perceived as successful, to depend both on particular individuals and on informal relationships which escape definition in formal program statements. The theory of external control by contract, monitored performance, and the exercise of sanctions, turns out often to lead not to uniformly high quality but to games of deception and evasion. (41) Formal service systems also frequently subvert espoused principles of equity and freedom from prejudice.

The problem of designing governmental interventions in the domain of social policy requires not that we choose between formal organization and informal network but that we coordinate the two perspectives. In particular, we ought to ask how these perspectives on governmental intervention may be combined so as to take account of the full repertoire of informal networks and network-related interventions, and of the dilemmas associated with them.

I cannot offer a theory of network-related intervention. I propose instead to explore three specific contexts for intervention, each of which I have chosen because it seems to me to illuminate particular themes which must be included in any future theory. These examples are "sites and services", services to the elderly, and the problem of improving and supplementing schooling in hard times. The first of these involves a re-casting of the division of labor shared by government, citizens' groups, and informal networks. The second example is a proposed strategy for extending and supplementing existing informal networks of the elderly.

The third is a proposed effort to create practitioner networks for the sake of disseminating new approaches to teaching and learning.

Sites and services. Squatter settlements are the shantytowns, the vast spread-out communities in which the poor live in shacks they have built themselves, in the major cities in developing countries throughout the world. In Housing by People (42), John Turner estimates that about one-third of the population of Caracas, one-half the population of Lusaka, Zambia, and one-third the population of Manilla, live in squatter settlements. Such massive phenomena can hardly avoid being seen, but they are seen and interpreted in very different ways.

For the officials of municipal governments, and for many of the well-to-do residents of these cities, the settlements are an eyesore, a mass of debris which has been established by illegal, indeed criminal, action, in violation of property rights, housing codes and zoning laws. The squatter settlements are in this perspective a blight upon the land and a spoiling of the planned city. For the partisans of squatter settlements, such as Turner, self-help construction, in the context of squatter settlements, provides an environment of amenity, community, and economic viability.

> Thanks to its rent-free accommodation, the family has a small surplus for saving toward its anticipated move, perhaps toward the the purchase of a plot of land, and construction of its own permanent dwelling. The family pays its share of the utilities ...the shack is not too great a hardship as long as the roof keeps the rain out--which it does adequately thanks to the use of plastic and other materials culled from the dump. Together with the use of enclosed and private backyard, the family has plenty of personal space for its domestic life... (43)

It is not difficult to identify, in these opposing views, a host of stubborn policy dilemmas. How is one both to protect property-rights, maintain standards of construction and sanitation and keep total costs

within bounds while at the same time providing housing services to those who need them, allowing people to get shelter at prices they can afford, accommodating the changing needs and capacities of families while leaving control in the hands of the users?

Is it possible to achieve an integration of these conflicting frames?

A movement has grown up over the last fifteen years or so which has tried to do so. The programmatic slogan for this effort is "sites and services." In some cities (Lima, Peru, is one such example) governments have considered how squatter settlements might be supported, rather than disrupted, by government action. Confronted with the failures of public housing programs and with the persistence of squatter settlements, these government officials have explored what sort of a mix of formal supports and of informal action, of government investment and of user initiative, might be designed.

Turner describes one such venture:

> The barrida of Huascaran contained an area that was large enough for some twenty single-family dwellings, which the settlement association had acquired and wished to distribute to member families who for lack of their own plots had been living doubled up with relatives or friends in the settlement. When the association approached our agency for funds and technical assistance, Marcial I suggested to the chief executive...that the agency simply lend the plot recipients the cash and let them get on with it under a minimum of supervision...The procedure was extremely simple. The local association allocated the plots to bona fide families who had no other urban properties and who contracted to build the minimum units specified within six months of receiving the first of five staged payments. The local recipients also undertook to repay the debt within a fifteen year period on very easy, subsidized interest rate terms. If the property were to be transferred, the debt would also be transferred...A new dwelling...would...be built at far less cost to the public than those built by commercial contractors... The total loans were small, just enough for the materials and skilled labor (bricklayer, roofer, electrician, plumber)... (44)

In other, larger projects, the government agency provided more than low-interest construction loans:

> In one major new settlement, with a site assigned by the central government, well over 100,000 inhabitants were served with graded streets, electric light and power and water mains serving public standpipes in the initial stages of settlement and in consultation with the settlers' association which formed an effective provisional local government. The costs of such simple and basic installations can generally be borne either by the inhabitants or by the government--or by a combination of public subsidies and local contributions. (45)

Such a program grows out of a complex coordination of the two perspectives held by municipal officials and by partisans of squatter settlements. The squatters' behavior is seen neither as criminality nor as self-sufficiency, but as initiative that may be both supported and controlled within the constraints of a government program. Individual settlers are seen neither as passive recipients of government services nor as independent violators of governmental regulations, but as responsible participants who can be trusted both to repay loans and avoid being cheated on the purchase of materials. Indeed, Turner reports that

> ...the Huascaran project participants had gotten their bricks with little or no delay. Another participant, a truck driver, took care of deliveries. One of them had a brother in a brick factory who negotiated such a good bargain with his employer that the project participants managed to get themselves a 5 percent better discount than the materials loan program. (46)

The competitive game formerly played between municipal officials, in which officials seek to control and punish while squatters seek to evade control, gives way here to a collaborative game in which officials and settlers both win when houses are built and loans repaid. The choice is no longer conceived as a choice between formal governmental interventions, such as public housing, and informal networks of squatters. Rather, a new question is raised as to the ways in which formal governmental

interventions can best complement the informal support system that grows up in squatter settlements. The new question leads to a reframing of the roles of the various parties. Government provides the large-scale infrastructure and the construction loans, while individual squatter families construct their own dwellings and local associations organize the processes of supply and distribution of resources. As for the role of large industry,

> What is being argued is that large organizations should have little or no business building or managing the dwelling environments. Instead, they should be doing a great deal more business installing infrastructure and manufacturing and supplying tools and materials that people and their own small enterprises can use locally. There is plenty of room for debate over the extent to which central administrations are in fact necessary for specific components of infrastructure. (47)

Sites and services has become an idea in good currency in its own right. The World Bank, for example, has now established loans in many parts of the developing world for sites-and-services programs. The point is not that sites-and-services is a panacea for the problem of housing in the third world, or even for the problems posed by squatter settlements. Predictably, as the scale of the program has increased, difficulties of organization and management have arisen which manifested themselves in minor ways, if at all, in the early exploratory programs. Nevertheless, the emergence of this idea, out of the conflicting perspectives associated with municipal housing and with squatter settlements, suggests how governmental interventions may be designed so as to take account of the interaction of formal service systems with informal networks.

In this respect, the case of sites-and-services has several noteworthy features:

. There was an existing pattern of self-help, and an existing network (as illustrated by the new settlers who lived with their friends and relatives while waiting for their own land). The municipal agency's contribution was, in the first instance, to recognize this network and to trust it beyond the level of trust usually accorded to settlers.

. There was an existing formal organization (the settlers' association) with which the municipal agency could contract for the distribution of loans.

. The complex business of housing (land-purchase and distribution, infrastructure development, dwelling-construction) was divided up in a task system which redistributed functions to institutions, based upon a new view both of the task system itself and of the special interests and capabilities of institutions. Thus, government made the loans in bulk to the settlers' association, which distributed the money to individual families which, in turn, contracted to repay the loans. The municipal agency contracted for roads, water, and utilities, which large enterprises installed. Among the settlers, a re-allocation of smaller-scale tasks occurred, with some members responsible for the negotiation of purchase of materials, others for transportation, and each family responsible for the construction of its own dwelling.

This re-description and re-allocation of housing tasks was essential to the working out of an effective combination of formal systems and informal networks.

. Compared to earlier practice, government relaxed its efforts to exercise control over settlers' behavior. Still, it did not abandon control. The settlers' association was trusted to distribute loans for land; settlers themselves were trusted to use the money for the purposes

intended; and settlers alone were trusted to purchase, transport and use materials. Government exercised control through the loan-agreement with the settlers' association, which called for a programmed repayment of the money.

The re-description and re-allocation of tasks, coupled with the relaxation (but not the abandonment) of controls, were central to this intervention.

We should also note that the criteria for distribution of land were left to the settlers' association. We do not know to what extent they were equitable. We do know something, however, about the inequities of earlier practices which treated squatter settlements as illegal invasions of private property and denied land to the poor altogether.

Services to the elderly. In earlier sections of this paper, I have made reference to a study of a sample of elderly residents of Cambridge, Massachusetts, which I conducted along with colleagues at M.I.T. This study had been designed with an eye to the problem of network-related intervention. I can summarize several of its more important findings as follows:

. The elderly persons in our sample had entered into informal networks of several different kinds. There were family networks, of which some of the most dramatic were the strongly bonded connections between mothers and daughters. (Mothers, who had cared for their mothers, held an absolutely unquestioned and fully reciprocated faith in the care they would receive from their daughters.) There were friendship networks that connected young and old (Dorothy, in the example cited earlier, had young friends who looked in on her regularly, one of whom called on her

every evening.) There were spatial networks (networks of those who lived in the same apartment block, in the same courtyard, on the same street, on the same corridor). There were coping networks of the kind I have earlier called "irregular economies" and "support systems," formed among elderly persons themselves, both those who lived in proximity to one another and those who lived relatively far apart. And there were informal networks which had grown up around formal organizations, most notably Chruch groups, centers for the elderly, and lodges such as the Moose.

There was no person in our sample of 25 who did not belong to at least one of these kinds of networks, and many of our sample belonged to several networks. The networks of individuals varied greatly in richness and variety.

. Membership in informal networks filled a range of different functions for the elderly, and there was some patterning to the kind of function filled by kinds of network. Thus, friends, neighbors, and family might all play a part in monitoring the elderly person (checking in regularly, by phone or in person); family payed a particularly prominent role in providing support in times of crisis; neighbor children might perform errands, or heavy housecleaning tasks, in return for small payments or for the use of a dining room for study. Young friends, or neighbors, might provide transportation to shopping or to the doctor's office. Cronies at the elderly center, friends in Chruch groups, and the vicarious contact with the MC's of radio talk shows, might all provide relief from loneliness.

What was most striking about all of these network-involvements, however, was that they could not be understood merely as an exchange of

services. Such exchanges did take place (though sometimes, as in the case of mothers and daughters, the exchange entailed a symmetry of relationships--"You will do for me as I have done for my mother"). But the more fundamental fact was that membership in informal networks mediated the meanings which individuals had constructed for their lives. The meaning of a woman's life, for example, might be bound up with the young people she had taught and befriended, with the many neighbors she took under her wing, or with the deep and unquiestioned loyalty of her daughter. The meaning of a man's life might be tied up in the memories of a lifetime of work as an engineer ("Never a boiler shut-down in 40 years!") and with his current role as elder in the Church, where "all the new members are my friends"; or a man's life might be given significance through the cluster of neighbors, young and old, whom he sees every day in the park (the young ones calling him "uncle", whether he is related to them or not).

The provision of services through informal networks is a crucially important aspect of the life-meanings created in and through these networks. It is impossible to say whether the created meanings are cause or consequence of the exchange of services.

. It is equally important to note that, for our sample, several kinds of services are not provided through informal networks. Nevertheless, even these essential services are often surrounded with a periphery of services informally provided, including the provision of access to formal services.

Thus, core income, health care and housing were obtained variously through public or private sources, but always through formal organizations. Nevertheless, income was often stretched by recourse to the exchanges

of the irregular economy. Informal nursing care was often provided by family, neighbors and friends, who also often provided transportation to the doctor or hospital. Ane, whether the elderly person lived in a public housing project, a private home, or an apartment, housing maintenance services--heavy housecleaning, the removal of garbage and trash, security--were gained through informal networks.

Given this picture, what might be the response of a government agency that wished to take informal networks into account in their provision of services to the elderly?

The response seems to me to have as much to do with what the agency would avoid doing, as with the positive actions it might undertake. The agency would avoid mounting service programs to do what informal networks already do. It would attempt to influence the behavior of other agencies --perhaps especially those concerned with housing, urban development, and transportation--so as to prevent the destruction of neighborhoods which frame informal networks, the construction of residences whose design would impede the forming of spatial networks, the building of roadways which would cut off the patterns of travel on which informal networks depend.

Social workers in direct contact with the elderly might seek to mobilize informal networks around crises experienced by the elderly (as in the interventions described in Section 2) and might try to help the elderly person increase the range and variety of the informal networks to which he belongs.

From the point of view of network-enhancement, the following interventions suggest themselves in the light of our knowledge of our Cambridge sample:

. Introduction of a flexible, low-cost transportation system for shopping, medical care, social and recreational needs. (A system such as Ann Arbor's Dial-a-Ride might be an example.)

. Improvement in the system of public security at the neighborhood level would increase the mobility, and therefore the network participation, of the elderly in Cambridge.

. Radio and TV are already broadly used by many of the sample as a vicarious extension of their informal networks; the creative use of these media might help to link these vicarious networks to other networks in which the elderly person could directly participate.

. In housing design, the lay-out of apartments, the arrangement of corridors, the planning of walk-ways and courtyards, might reduce the impediments sometimes offered by buildings to the forming and utilization of informal networks. (This type of intervention is a field of study in itself, as in the work of Sandra Howell in M.I.T.'s Department of Architecture.)

. "Matching Services" might be deployed to create living patterns in which the elderly could compensate for one another's disabilities (a recent Boston University experiment in the matching of the blind and the arthritic is an example).

. It would be possible to recognize those formal agencies on which informal networks readily "drape"--Church, lodge, Center for the Elderly, providing small amounts of additional support to them which might enable informal networks to extend.

These network-enhancing interventions are mostly of a kind that do not require the direct selection of the beneficiaries of service. Rather, the beneficiaries select themselves. Hence, governmental intervention

would not have to carry with it the exercise of control over the selection of recipients, along with the dilemmas contingent on such control. Still, it is very clear that certain inequities are built into the pattern of informal networks of the elderly in Cambridge. Some persons are far richer than others in the texture of the networks to which they belong. Some persons are very nearly isolated. For these persons, services of last resort may be a necessary complement to network-enhancing interventions.

We should also observe that the entire pattern of responses outlined above would depend upon an awareness of the pattern of informal networks and formal service systems, and of their interaction in the lives of the elderly in Cambridge. If government agencies are to take network-related intervention seriously, they must learn to diagnose informal/formal service patterns, to plan for network-related intervention, and to monitor interventions in terms of their effects upon these patterns.

Improving and supplementing schooling in hard times. The present moment in the history of public education in the United States is widely recognized as one of contraction in the population of the schools, economic anxiety for both teachers and students, disillusionment with the pretensions of earlier efforts at school reform. (48)

From the point of view of superintendents, principles and teachers themselves, there is intense concern with the issue of staff-development and renewal. Most of those now teaching will be teaching some ten years hence, and they will be still the great majority of those teaching.

From the point of view of many of the past protagonists of curriculum reform, in government and in the universities, the problem is one of implementing ideas that have already been developed, of disseminating

broadly what some pilot ventures have already succeeded in doing at small scale.

I would like to consider these issues together. Staff development and renewal, and the dissemination of new teaching methods, may be seen as co-ordinate tasks. If new teaching methods are seen primarily as new ways of thinking about the process of learning particular subject-matters, then "dissemination" must involve helping large numbers of teachers to learn to think in that way. Perhaps they cannot learn to think differently about a subject-matter unless they first get in tough with their present ways of understanding it. If "staff development and renewal" is understood as a process by which teachers become re-excited about their own teaching because they come to see it as an opportunity for learning, then teachers must learn to make contact with their own intuitive ways of understanding the phenomena of teaching and learning. In both cases, teachers must learn to become researchers into their own practice.

How does one learn to become a researcher into his own practice? As with any complex activity requiring skill and artistry, one for which there is no adequate theory of instruction, one learns it primarily by apprenticeship. And the widespread dissemination of artistry requires the operation of networks for apprenticeship, within which the less skilled can become more skilled by prolonged contact with those who are able to help them learn. In this sense, one must foster the creation of practitioner networks both for the sake of staff development and renewal, and for the sake of dissemination of new ways of thinking about particular subject-matters.

This perspective on dissemination is very different, of course, from the perspective under which we regard new curriculum knowledge as

"materials" which can be packaged in books, tapes or films. Here, dissemination means the literal distribution of these content-packages. The nexessary learning is presumed to occur by reading, listening or watching, supplemented perhaps by occasional workshops in which one tries out what he has learned. The great advantage of this view is that dissemination, so conceived, may be very rapidly and cheaply made to cover a vast population. Its disadvantage is that it fails to result in learning whenever the activity involves artistry and whenever it calls upon the learner to make discoveries and inventions for himself.

The position I am advocating here is that the most important and valuable improvements in schooling are precisely those that would help teacher and learner to acquire artistry in making discoveries and inventions of their own. As a parable of this view, consider the story of the Grandfather Clock:

A CLOCK

> An aunt of mine was a teacher of small children in a large city during the nineteen-thirties. Her style of teaching was derived from deep springs of feeling about children. She was more their friend than their teacher, and she taught by entering their world.
>
> In the period of the thirties no one could afford much in the way of teaching aids. They had a few things, but primarily they had blocks and orange crates which the children painted by way both of designing and possessing. Someone had made the face and hands of a clock as an aid in learning to tell time. They had one expensive machine, a metronome; it, along with a pitch pipe, had been provided by the school to encourage music. The metronome was not supposed to be used by the children; it was delicate to adjust, and it was not a toy. But my aunt let the children employ it at times; she felt they were not going to hurt it on purpose, and if an accident happened, she would pay for having it repaired.
>
> Even after many years, one incident remains particularly memorable. A small group was organizing orange crates and blocks as usual into this or that when someone set an orange

> crate on end and someone else placed another crate on end on top of the first--and someone else placed the face of the clock at the top--and someone else ran to get the metronome to put in the back. By a series of swift events the children "discovered" the Grandfather Clock. Did they have fun! For a few moments everyone was caught up in the experience of both discovering and being pleased by the object of their discovery.
>
> The odd coincidence right in the middle of this event was that the principal entered the room to observe. He saw the appropriation of the expensive metronome--but most of all, he saw the joy of everyone's participation in the proces of discovering the Grandfather Clock. Immediately he congratulated the teacher on her teaching skills and requested that she write up this exercise for him so that he could insert it into the general study program. He said that he felt every first grader in the city of Pittsburgh should experience the joy of making a Grandfather Clock, and he left the room.
>
> For a moment the teacher was immobilized by a portentous vision of the mass recapitulation of the Grandfather Clock exercise all across town. She imagined the Board of Education's year after year requisitioning of large quantities of orange crates, faces of clocks and metronomes, and of teachers executing the exercise of planned spontaneous discovery.

To learn from this experience that every kindergarten should be provided with the materials for a grandfather clock is (like Epanimondas, in the famous story) to draw from the experience a lesson of mechanical repetition which is antithetical to its deeper meaning. What is important about the story is just that the teacher recognized the possibilities in the simple materials, and found ways of releasing in the children <u>their</u> abilities to discover and to realize such possibilities. One would like to help teachers learn to make such discoveries and learn to help others to discover and realize such possibilities. The moral of the story is not that teachers should get their students to build grandfather clocks but that they should learn to become researchers into their own practice. To pursue this notion somewhat further, let me describe a seminar in which I have participated for several years along with colleagues at M.I.T. (50)

We have studied and attempted to describe the ways in which people go about performing simple tasks such as tune-building, path-finding, playing a game whose purpose is to show how two dissimilar things are alike. We have come to believe that people have intuitive knowledge which reveals itself in the way in which they go about such tasks and in the "loud thinking" they do while carrying them out. We think such intuitive knowledge consists in strategies for grouping things, for naming and describing phenomena, for transforming representations of things, for seeing one thing as another. We are impressed with the fact that such intuitive knowledge is often of a kind we will call "figural," as contrasted with the "formal" knowledge of relations of fixed properties. A figural tune-builder, for example, will construct the tune as though constructing a path, grouping events on the basis of their situational properties; he grasps the gesture, or motive, created by the boundaries of events. A formal tune-builder will identify tune-events by their pitch properties (a "G2, a "C", an "A"), as determined by their position in a scale which serves as fixed reference. In the context of finding one's way in space, a figural navigator will make a "felt path", a sequence of landmarks and passages between them; he experiences the landmarks as a series of events, next-next-next, and can find his way from one landmark to the next, but he cannot represent the path as a whole nor can he represent the relation of two paths to one another. A formal wayfinder will employ a co-ordinate map, will represent his path as path upon such a map, and will be able to display the relationships of paths to one another.

Both figural and formal strategies are essential ways of organizing and making sense of experience. An understanding of music, for example,

involves precisely the co-ordination of figural and formal strategies for grouping events. Yet in the context of schools, formal strategies alone are valued. As a consequence, the need to do well in school often confronts the figural child with a version of Hobson's choice: If he wishes to do well in a setting that values only formal ways of knowing, then he must repress, abandon or compartmentalize his figural competences; if he fails to do so, he may be treated as having a "learning disability."

On this view, a good teacher is one who excells at helping children to get in touch with their own intuitive knowledge, to reflect upon it in the context of concrete examples, to discover multiple ways of seeing the same phenomena, and then to co-ordinate figural and formal perspectives. But for this, of course, teachers must be able to get in touch with their own intuitive knowledge, with their ways of actually understanding subject-matters such as mathematics, music, English literature, or social studies, and must learn to become skillful at doing what it is they would like the children to learn to do.

Such capacity for research into one's own practice is rare at any level of formal education. Yet the dissemination of such an approach to learning and teaching depends upon the few whose skills are relatively advanced. In order to learn to become researchers into their own practice, in this sense, teachers must have prolonged contact with the relatively more skilled, contact of a kind that is more like apprenticeship than it is like classroom experience. The widespread dissemination of this kind of learning requires the deelopment, through apprenticeships, of numbers of persons who can learn to teach in this way and can then become the

nuclei for new apprenticeship groups.

Such a process is, indeed, a form of network-creation. Given the nature of what is to be learned, and of the ways in which at present it can be learned, the creation of apprenticeship networks of practitioners is the only feasible approach to dissemination.

Government agencies might foster the creation of such networks through the usual means: the support of release-time for teachers, travel and incidental expenses, monitoring and evaluation of the teaching/learning process. The hope in such an approach would be that the initial formal creation of practitioner groups would contribute to the extension of informal networks based upon such an approach to teaching and learning.

The dilemmas of network-related intervention are very much present in this example.

Schools most likely to need help are those least likely to be able to get it, because they lack the resources on which to build. Response to the issue of equity will not be adequate if it consists in network-creation alone.

The building of apprenticeship networks, as conceived here, is likely to put new demands on participating schools. Teachers who begin to become researchers into their own practice are likely to press for changes in school structure and program in order to open up opportunities for the sorts of learning they come to perceive as important. Government, by its support of these apprenticeship networks, will have encouraged these demands for change in the schools. Indeed, by its choice of an approach such as the one advocated here, government will have lent its support to a particular kind of development in teaching and learning.

Yet government will not be able to enforce such changes by reliance upon formal accountability and external controls. Only as teachers become excited about the possibilities for learning about their own practice, translate that excitement to their classroom experience and communicate it to school administrators and parents, will the objectives of the intervention be realized. The best hope for dissemination lies in the extension of trust in their self-generated initiatives.

Taken together, these three examples suggest several interrelated themes for network-related intervention.

(1) "First, do no harm." The first item in the Hippocratic Oath has its analogue here. The injunction is that government do nothing to displace or disrupt the informal networks that already function to provide help, support, and service. But the ability to follow this injunction depends upon an appreciation of the networks that exist, of their functions, and their relations to formal service systems.

(2) Effective network-related intervention depends upon the extension of trust in the participants, beyond the level normally present in government interventions, and it implies the relaxation though not the abandonment of external controls.

(3) Often it will be necessary to restructure the task system so as to permit a more appropriate allocation of functions to government, to formal associations of recipients of services, and to informal networks themselves. Government may allocate to itself the services that networks do not or cannot provide, the services of last resort for those individuals whose informal networks are impoverished, the services whose use is most likely to be self-selective.

(4) Multiple interventions may be employed (as in the case of services to the elderly) to foster the development of existing networks.

(5) Government may be able to avoid the unintended formalization of networks by creating formal associations which later tive rise to informal networks, or by working with formal associations which overlap with but are distinct from informal networks.

There can be no recipe for effective network-related intervention, any more than there can be a recipe for effective teaching. These themes represent elements of a repertoire of possible approaches, rather like the repertoire of a good teacher who combines and transforme elements in improvisations that respond to experienced features of the teaching/learning setting.

Indeed, there is more than a passing resemblance between the stance of a teacher who appreciates the intuitive understandings of his students and the stance of an intervenor who appreciates the informal networks at work in a domain of social policy. In both cases, there is a danger of blindness to the informal, and in both cases a corresponding danger of a Romantic over-valuation. In both cases, what is demanded of the teacher/intervenor is that he be able to appreciate what is there and that he improvise and experiment toward a co-ordination of formal and informal perspectives.